Webster County Schools

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9th – 12th Grade

Packet 4

English

Thesis Statement (chapter 1 in *Patterns*)**:** The thesis statement is one of the most important statements (if not **the** most important) in your paper because, if developed successfully, it unifies and focuses your paper. A thesis statement reveals the central point of your essay, i.e. the purpose and direction of your essay.

Understanding what a thesis statement is **NOT** will help you develop a more effective thesis.

A thesis statement is **NOT A TITLE**:

Hybrid Cars: Pro and Con
Orwell's "A Hanging"
Speaking Out

A thesis statement is **NOT AN ANNOUNCEMENT**:

(I will examine the pros and cons of hybrid cars that use both gasoline and electricity.
This paper/essay will discuss....
The purpose of this paper/essay is....
I will explore the differences between....

Note: Announcements should not be used anywhere in your paper.

A thesis statement is **NOT A STATEMENT OF FACT**:

(Hybrid cars are more energy efficient than cars with standard gasoline engines.
In his essay, George Orwell describes a hanging that he witnessed in Burma.
Once I saw someone cheating and did not speak out.

In some cases, you will have a clear idea of your thesis even before you freewrite; but at other times, you may have to freewrite and review your ideas before you can formulate an adequate thesis that focuses and directs your paper. Therefore, your thesis should be developed **before** you begin your first draft (know what it is that you plan to argue). In addition to revealing the purpose and direction of your paper, your thesis should be clearly worded (should not mislead the audience; should not include vague language, irrelevant details, or highly elevated language intended only to impress rather than express).

ABC Thesis: This type of thesis statement may be a good choice early in the writing process because it forces you to think about what you are arguing and why. An ABC thesis asserts a point because of three (or more) reasons that become the body paragraphs. An ABC thesis might assert that "Eupora High School should not adopt a uniform policy because enforcing a uniform policy would diminish school spirit, discourage a student's individuality, and fail to correct problem behaviors as intended."

Note: You may have been taught a three part thesis statement (X is true because A, B, and C). While this method forces you to organize your paper and focus on each of your three points, some teachers/instructors do not prefer this type of thesis because they consider it awkward and to be less effective stylistically. Therefore, consider developing your thesis using the four-step method.

Four Steps to a Thesis (adapted from Sheridan Baker's *The Practical Stylist*; borrowed and adapted from Dr. Gregory Bentley)**:**

1. State your initial idea in the form of a debating resolution.
   Resolved: Eupora High School should not adopt a uniform policy
2. Add because.
   because adopting a uniform policy would have negative consequences
3. Add a concession.
   Even though uniforms in public schools are becoming more popular,
4. Polish the prose.

Even though uniforms in public schools are becoming more common, Eupora High School should not adopt a uniform policy because the negative consequences of this policy would be greater than the benefits.

A last note for your benefit:

1. Your thesis should be a single sentence.
2. Your thesis should be the last sentence of your introductory paragraph. (ideally because your intro has led up to it)
3. Your thesis should be specific enough to develop within the time and space allotted, it should be broad enough to cover everything you develop in the essay, and, ideally, it should be provocative.

Topic Sentences (chapter 2 in *Patterns*): Topic sentences reveal the main point of each paragraph (just as the thesis reveals the main point of the essay). Each topic sentence "acts as a guidepost, making it easy for readers to follow the paragraph's discussion" (41).

Thesis Statement/Topic Sentences Worksheet

Please use the thesis statement/topic sentences handout to complete each of the following sections. Students should work alone on all sections to insure individual understanding of concepts (not a collaborative activity).

Section 1:
For questions 1-4, decide if the statement is an effective thesis statement that establishes the direction of an essay or an ineffective thesis statement (lacks focus, states a fact, etc.). If effective, write "effective" by the number; if ineffective, write "ineffective" and explain why.

1. Contrary to popular assumptions, myths are more than fairy tales because they express the underlying attitudes a society has toward important issues.
2. Fiction can be used to criticize society.
3. This paper attempts to dispel some of the misconceptions that the general public holds about single mothers who live in inner cities.
4. Today, almost two marriages in four will end in divorce.

Section 2:
For two of the following four general topics, use the four-step thesis method to develop an effective thesis statement.

5. families with two incomes
6. homework in high school
7. Wii gaming systems in nursing homes
8. the best house dog

Adverb or Adjective #1

Adverbs and adjectives both describe, but they're used differently. Examine the chart and examples below to see how each is used.

Adverbs Modify	**Adjectives Modify**
Verbs Adjectives Other adverbs	nouns pronouns
For example:	For example:
Verb adverb ^ ^ My sister drives carefully.	noun adjective ^ ^ Mike was tired after the race.

Directions: Look at the sentences below and decide whether an adverb or adjective is needed. Circle your choice. Then underline the word it modifies. (Hint: adverbs usually, but not always, end in "ly").

1. The house looked (empty, emptily).
2. Jason pitched (wild, wildly).
3. The choir sang (good, well).
4. Those hills look (beautiful, beautifully).
5. The teams were matched (even, evenly).
6. The cheese on this cracker tastes (strange, strangely).
7. You print so (neat, neatly).
8. Ron arrived (prompt, promptly) at ten.
9. I go to the gym (regular, regularly).
10. The snow fell (steady, steadily).
11. The solution to the crime seemed (obvious, obviously).
12. The hem of the skirt was (real, really) crooked.

Adjectives or Adverbs? #2

Directions: Determine whether each underlined word below is an adjective or an adverb.

1. The woolly mammoth is believed to be the ancestor of the modern elephant.
2. She jumped up suddenly and left the room.
3. This recipe calls for coarsely ground nuts.
4. The early bird gets the worm.
5. She speaks so softly that I can hardly hear her.
6. She has curly blond hair and blue eyes.
7. "Come here, quickly," she said, "and help me get this curtain hung."
8. At the pet shop a cuddly little kitten snuggled up to me, and I almost bought it.
9. A nicely trimmed hedge is an asset to a yard.
10. His kingly bearing makes him a perfect choice for the role of pharaoh in our play.
11. That oil painting is absolutely magnificent!
12. Toothpaste ads on television always feature models with gleaming, pearly teeth.
13. "I'm the greatest," he said jokingly, as he flexed his almost nonexistent muscles.

Adverbs and Adjectives #3

Directions: For each of the following sentences, identify the underlined word as either an adjective or an adverb.

1. Music has accompanied drama since <u>old</u> times.

2. Beethoven, a composer, <u>tirelessly</u> devoted himself to his music.

3. He <u>often</u> worked late.

4. In the old days, musical selections were performed live by <u>great</u> pianists.

5. Beethoven was <u>terribly</u> shocked when he learned he was losing his hearing when he was in his late twenties.

6. His condition <u>gradually</u> worsened.

7. Music in silent films (films with no talking) had little, if any, connection to the on-screen action and presented <u>little</u> variation from one scene to the next.

8. Today music plays a <u>special</u> role in the production of movies.

9. Can you think of any <u>good</u> movie soundtracks?

10. <u>Recently</u>, I saw a movie that had a really good soundtrack.

Adverbs and Adjectives #4

Directions: Identify each of the underlined words as either an adjective or an adverb.

1. Karaoke became a major trend in Japan and around the world.
2. Many people sing karaoke, even though some sing poorly.
3. The concept of karaoke is not a new one.
4. The word "karaoke" means "empty orchestra" in Japanese.
5. Powerful speakers play the background music.
6. Meanwhile, the lyrics are displayed on a large screen.
7. Sometimes the lyrics move by too quickly and singers get lost.
8. What do you think is the most popular song for karaoke singers?
9. Karaoke can be challenging when the songs are chosen randomly for you.
10. Karaoke is so fun, I am sure it will be around for a long time.

Adjective or Adverb Exercise #5

Directions: Choose the correct item from the choices in the parentheses.

1. He (correct, correctly) defined the terms. The answer sounded (correctly, correct).
2. She (quickly, quick) adjusted the fees. She adapted (quick, quickly) to any situation.
3. He measured the floor (exact, exactly). They proved to be (perfectly, perfect) (exact, exactly) measurements.
4. The stillness of the tomb was (awfully, awful). The tomb was (awfully, awful) still.
5. It was a (dangerously, dangerous) lake to swim in. The man was (dangerous, dangerously) drunk. The gas smelled (dangerously, dangerous).
6. She performed (magnificent, magnificently). It was a (magnificent, magnificently) beautiful performance.
7. Her voice sounds (beautifully, beautiful). She sang the song (exact, exactly) as it was written. We heard it (perfectly, perfect).
8. He was a very (sensibly, sensible) person. He acted very (sensible, sensibly).
9. Mike wrote too (slow, slowly) on the exam. He always writes (slow, slowly).
10. Talk (softly, soft) or don't talk at all. The music played (softly, soft).
11. Andrea knows the material very (good, well). She always treats us (good, well).
12. You must send payments (regular, regularly). We deal on a (strictly, strict) cash basis.
13. The mechanic's tools were (well, good). The foreman said that his work was (good, well) done.
14. She worked (careful, carefully) with the sick child. She was a very (careful, carefully) worker.
15. He did not pass the course as (easy, easily) as he thought he would.
16. I find this novel very (interesting, interestingly). It was (interesting, interestingly) written.

Adjective or Adverb #6

Directions: Write down the correct form of the red word in parentheses (adjective or adverb).

1. Tom is (slow) _____. He works _____.
2. Sue is a (careful) _____ girl. She climbed up the ladder _____.
3. The dog is (angry) _____. It barks _____.
4. He acted (excellent) _____. He's an _____ actor.
5. They learn English (easy) _____. They think English is an _____ language.
6. Max is a (good) _____ singer. He sings _____.
7. It's (awful) _____ cold today. The cold wind is _____.
8. Dogs rely on their noses as they can smell (extreme / good) _____. If that is true, why does dog food smell so (terrible) _____?
9. The little boy looked (sad) _____. I went over to comfort him and he looked at me _____.
10. I tasted the soup (careful) _____ but it tasted (wonderful) _____.

Adjective or Adverb #7

Directions: Identify the underlined word as either an adjective or an adverb.

1. He's a dangerous driver.
2. He ate his dinner very quickly.
3. She's a bad speller.
4. Suddenly the wind changed directions.
5. Please try to be more careful.
6. He walks so heavily in those boots.
7. She plays the piano perfectly.
8. He is a quick talker, but he never listens.
9. She writes very badly.
10. There was a loud noise last night. Did you hear it?
11. She's a careful driver, I think.
12. Our guest left quite abruptly.
13. The stranger approached the wood cautiously.
14. The flowers smelled fragrant.
15. My little sister is five years old.
16. The children screamed frantically when they saw a ghost.

Adjectives #8

Directions: Identify the word that is being described by the underlined adjective.

1. A violent storm uprooted a large tree in the front yard.
2. The hot sun beat down on the thirsty animals.
3. The kangaroo has short forelegs and a large, thick tail.
4. A number of famous writers are buried in Westminster Abbey.
5. The traveler, tired and weak, struggled with a heavy trunk.
6. The official guides at the United Nations can speak a number of different languages.
7. The charming, handsome couple celebrated their fiftieth wedding anniversary.
8. My glasses are dirty.
9. The swimmer felt happy after she won the relay race.
10. This ground looks swampy.

Adjectives #9: Adjectives, Nouns, or Pronouns?

Directions: Identify the word that is underlined as either an adjective, noun, or pronoun.

1. The science book is on the shelf.
2. The airplane ride was exciting.
3. My favorite school subject is science.
4. My favorite school subject is science.
5. I spilled ink on the desk top.
6. The desk in the corner is mine.
7. The swimming class has five students.
8. Swimming is my favorite sport
9. Each person did the assignment.
10. This is my favorite television show.
11. Whose gloves are these?
12. Most of the answers are correct.
13. I chose that subject for my speech.
14. Most puppies sleep for many hours a day.

Adjectives #10: Identifying Proper Adjectives

Directions: Write all the proper adjectives on a sheet of notebook paper. Not every capitalized word is a proper adjective, and many sentences will have more than one.

1. The remains of several Roman roads can be seen in England today.

2. American tourists in Paris enjoy going to the Eiffel Tower.

3. The Shakespearean actors were dressed in Elizabethan costumes.

4. Two Italian dishes which Americans enjoy are lasagna and spaghetti.

5. Many French words were added to the English language.

Adverbs #11: Modifying Verbs, Adjectives, and Other Adverbs

Directions: Identify the adverb for each of the following sentences and identify the word that adverb is modifying (describing).

1. Speak now or forever hold your peace.
2. Yesterday, Mrs. Blue thoughtfully assigned two brief assignments.
3. Today, the students will arrive early.
4. She did well on the first test, but she failed the second test miserably.
5. The skaters put on a very exciting show.
6. The runner was an unusually fast starter.
7. Kangaroos are extremely fast animals.
8. They look quite awkward when they jump.
9. The great red kangaroo is surprisingly tall.
10. Before 1900, fingerprinting was very rarely used by the police.
11. People used their fingerprints quite often to protect themselves from forgers.
12. Fingerprinting has been used much longer than we ordinarily think.
13. The expert worked quite rapidly.

Recognizing Adjectives #12

Directions: Select the underlined word in each sentence that is an adjective.

1. Grandpa always told us exciting tales about his boyhood in the "old country."

2. He will probably be reelected, since his performance during his term in office has been outstanding.

3. Among older workers there is less absenteeism and greater productivity.

4. This painting appears to be an exact copy of an earlier work.

5. Visiting the site of the ancient city of Troy was an experience I will never forget.

6. Bud's reply to the teacher's question was instantaneous.

7. The salesman said he was nervous because it was his first day on the job.

8. Helen is the most sensible girl in this group.

9. I wonder how Vivian can afford to wear the very latest styles.

10. Vigorous exercise several times a week is recommended for keeping muscles in good condition.

11. As he stared at the trophy, he pictured himself making the crucial hit that won the game.

12. Neglected children often have serious psychological problems that get them into trouble.

13. Water shortages in parts of the United States have prompted the growing of xeric plants (those requiring less water).

Adverbs #13: Writing Adverbs?

Directions: Rewrite the words in brackets as adverbs.

1. [In a rough way of] speaking, Beethoven and the great composer Wolfgang Amadeus Mozart were contemporaries.
2. The two crossed paths only [one time] or [two times].
3. This was not because they disliked each other; on the contrary, Beethoven, who was the younger of the two had [at all times] admired Mozart [in a way that is tremendous].
4. [In a way that is tragic] for music lovers, Mozart died at the age of thirty-five.
5. Rumors [in not much time] began to spread that Mozart had [in actual terms] been murdered by a music rival.
6. [It is alleged], Antonio Salieri, who was a friend of Mozart's and a fellow composer, poisoned the young genius.
7. According to legend, Salieri was [to an extreme degree] jealous of Mozart.
8. Mozart was by all indications one of the most [in a remarkable way] gifted musicians who ever lived.
9. Salieri, by comparison, was only [in a moderate way] talented.
10. The relationship between the two composers is [in a thorough way] explored in a movie called *Amadeus*.

Excerpt from *An Unsinkable Titanic*

James Bernard Walker

The Titanic was a famous ship built in the 1900's that sank after striking an iceberg in the Atlantic Ocean. Read the adapted excerpt below to find out what happened on the day the great ship sank.

1 The *Titanic*, fresh from the builder's hands, sailed from Southampton, England, on Wednesday, April 10, 1912. She reached Cherbourg, France, on the afternoon of the same day, and Queenstown, Ireland, at noon on Thursday. After this, she left for New York with 1,324 passengers and a crew of 899 persons on board.

Warnings of Ice

2 The weather throughout the voyage was clear and the sea calm. At noon on the third day out, a wireless message was received from the *Baltic*, dated Sunday, April 14. The message read, "Greek steamship *Athinai* reports passing icebergs and large quantity of field ice today in latitude 41.51 north, longitude 49.52 west." At about 7 P.M., a second warning was received by the *Titanic*, this time from the *Californian*, which reported ice about 19 miles north of the track on which the *Titanic* was steaming. Later there was a third message, "*Amerika* passed two large icebergs in 41.27 north, 50.8 west on the 14th of April." A fourth message, sent by the *Californian*, reached the ship about an hour before the accident occurred, or about 10:40 P.M. This fourth message read, "We are stopped and surrounded by ice."

3 These wireless warnings prove that the captain of the *Titanic* knew there was ice to the north, to the south, and immediately ahead of the southerly steamship route on which he was steaming. The evidence shows that Captain Smith remarked to the officer on duty, "If it is even slightly hazy, we shall have to go very slowly." The officer of the watch instructed the lookouts to "keep a sharp lookout for ice." The night was starlit and the weather was exceptionally clear.

Increased Speed, Despite Warnings

4 After leaving Queenstown, the speed of the *Titanic* had been gradually increased. The crew was reluctant to allow anything to interfere with the full-speed run of the powerful ship. This is the only possible explanation of the amazing fact that, in spite of successive warnings that a large icefield with bergs of great size was drifting right across the course of the *Titanic*, fire was put under additional boilers and the speed of the ship increased.

5 The fate of that ship and her precious freight of human life hung upon the mere chance of sighting an obstruction in time to avoid collision by a quick turn of the helm[1]. The question of hitting or missing an iceberg was one not of minutes, but of seconds. A ship like this, more than a thousand feet in length, makes a wide sweep in turning, even with the helm hard over. At 21 knots[2], the *Titanic* covered over a third of a mile in a minute's time. Even with her engines reversed, she would have surged ahead for a half mile or so before coming to a stop.

Contact with the Iceberg

6 And so the majestic ship swept swiftly to her doom in a concrete expression of man's age-long struggle to subdue the resistless forces of nature. As she sped on under the dim light of the stars, not a soul on board dreamed of the death-grapple the *Titanic* was about to face against the relentless powers of the sea. Although she was the latest product of the shipbuilder's art, she was about to brush elbows with another kind of giant.

7 At 11:46 P.M., the sharp warning came from the lookout, "Iceberg right ahead!" Instantly the engines were reversed, and the helm was turned sharply to the right. If only the warning had been a few seconds earlier, she might have cleared the iceberg. As it was, she struck an underwater piece of the iceberg and ripped open 200 feet of her plating. It was a death wound! How deeply the iceberg cut into the fabric of the ship will never be known.

Lifeboat Shortage

8 Only after Mr. Andrews, the ship's designer, told the captain that the ship was doomed was the order given to man the lifeboats—twenty of them in all. If every lifeboat were loaded to its full

practically unsinkable.

9 The manner of the stricken ship's final plunge to the bottom may be readily gathered from the stories told by the survivors. As compartment after compartment was filled with icy cold water, her bow[3] sank deeper and her stern[4] lifted high in the air, until the ship stood almost vertically in the water. The shell of the *Titanic* went to the bottom practically intact. The ship, weighted at her front end with the wreckage of the engine, sank, straight as an arrow, to bury herself deep in the ooze of the Atlantic bottom two miles below. For all we know, she may now be standing there, a sublime memorial to the fifteen hundred souls who perished in this unspeakable tragedy.

Walker, James Bernard. *An Unsinkable Titanic: Every Ship its own Lifeboat*. Dodd, Mead and Company. July, 1912. New York. In the Public Domain. Adapted by Educational Leadership Solutions, Inc.

[1]helm - steering wheel of a boat or ship
[2]knots - unit of speed equivalent to one nautical mile per hour
[3]bow - front part of a boat or ship
[4]stern - back part of a boat or ship

End of Passage

This question refers to **Excerpt from An Unsinkable Titanic (adapted)**

19. Which sentence **best** supports the idea that pride was a factor in the outcome of the *Titanic*?

A. "The *Titanic*, fresh from the builder's hands, sailed from Southampton, England, on Wednesday, April 10, 1912." (paragraph 1)
B. "The crew was reluctant to allow anything to interfere with the full-speed run of the powerful ship." (paragraph 4)
C. "Although she was the latest product of the shipbuilder's art, she was about to brush elbows with another kind of giant." (paragraph 6)
D. "For all we know, she may now be standing there, a sublime memorial to the fifteen hundred souls who perished in this unspeakable tragedy." (paragraph 9)

This question refers to **Excerpt from An Unsinkable Titanic (adapted)**

20. Which **two** sentences demonstrate the author's use of rhetoric to achieve the purpose of the passage?

☐ "The weather throughout the voyage was clear and the sea calm." (paragraph 2)

☐ "These wireless warnings prove that the captain of the *Titanic* knew there was ice to the north, to the south, and immediately ahead of the southerly steamship route on which he was steaming." (paragraph 3)

☐ "It was a death wound!" (paragraph 7)

☐ "If every lifeboat were loaded to its full capacity, there would only be space for just over 1,000, for a ship's company that numbered 2,223 in all." (paragraph 8)

☐ "The manner of the stricken ship's final plunge to the bottom may be readily gathered from the stories told by the survivors." (paragraph 9)

This question refers to **Excerpt from An Unsinkable Titanic (adapted)**

21. This question has two parts. First, answer Part A. Then, answer Part B.

Part A
How is the central idea of paragraphs 4-5 developed?

- ☐ by proving that the ship had the capacity to increase its speed over a short amount of time
- ☐ by providing details to show the flexibility of the ship in turning
- ☐ by explaining the crew's choice to maximize the ship's speed, disregarding important information
- ☐ by describing the distance the ship could travel in a short amount of time

Part B
Which of the following sentences from paragraphs 4-5 **best** supports the answer to Part A?

- ☐ "After leaving Queenstown, the speed of the *Titanic* had been gradually increased." (paragraph 4)
- ☐ ". . . in spite of successive warnings that a large icefield with bergs of great size was drifting right across the course of the *Titanic*, fire was put under additional boilers and the speed of the ship increased." (paragraph 4)
- ☐ "A ship like this, more than a thousand feet in length, makes a wide sweep in turning, even with the helm hard over." (paragraph 5)
- ☐ "At 21 knots the *Titanic* covered over a third of a mile in a minute's time." (paragraph 5)

This question refers to **Excerpt from An Unsinkable Titanic (adapted)**

22. How do paragraphs 6-7 help the author to develop the conflict between man and nature as part of the tragedy of the *Titanic*?

A. by describing the effect of the damage of the iceberg to the plating of the ship
B. by presenting the sequence of events after the ship struck the iceberg
C. by using figurative language to describe nature's overwhelming power
D. by providing details of the dark night when the accident occurred

This question refers to **Excerpt from An Unsinkable Titanic (adapted)**

23. Read the excerpts below, taken from the depositions of two of the *Titanic's* passengers during the Limitation of Liability hearings in the aftermath of the *Titanic*'s sinking. The passengers discuss the interactions of Bruce Ismay, founder of the company that built the *Titanic*. Ismay was on the ship during its voyage.

From "Deposition of Emily Borie Ryerson:"

(Mr. Ismay) produced from his pocket a telegram blank on which some words were written in type-writing, and he said that we were in among icebergs- he said as he handed the telegram to me.... he said, 'We are not going very fast,... but we are going to start up some extra boilers this evening... I didn't know what it meant except going faster.

"Deposition of Emily Ryerson and Grace Bowen." *National Archives Catalog*. Web. June 1913.

From "Deposition of Mrs. Elizabeth L. Lines:"

Q. Are you able to state from your recollection the words you heard spoken between Mr.Ismay and Captain Smith on that occasion?

A. We had a very good run.... and I heard Mr.Ismay... give the length of the run, and I heard him say, 'Well, we did better today than we did yesterday.... We will make a better run tomorrow. Things are working smoothly. The machinery is bearing the test. The boilers are working well." They went on discussing it, and then I heard him make the statement: 'We will beat the Olympic and get in to New York on Tuesday.'

"Deposition of Mrs.Elizabeth L. Lines." *National Archives Catalog*. Web. October 1913.

Which paragraph from the passage demonstrates the same information included in **both** of the above statements?

A. paragraph 2
B. paragraph 3
C. paragraph 4
D. paragraph 5

This question refers to **Excerpt from An Unsinkable Titanic (adapted)**

24. How does the author develop the idea of negligence as a factor in the *Titanic's* fate?

A. by providing detailed examples of messages from various ships
B. by comparing the crew members' assessments of weather conditions
C. by explaining the effect of the engine's weight upon the ship
D. by stating that the ship was on its first voyage from England

This question refers to **Excerpt from An Unsinkable Titanic (adapted)**

25. Select **three** phrases from paragraph 7 that contribute to the overall tone of the paragraph.

At 11:46 P.M. the sharp warning came from the lookout. "Iceberg right ahead!" Instantly the engines were reversed and the helm was turned sharply to the right. If only the warning had been a few seconds earlier, she might have cleared the iceberg. As it was, she struck an underwater piece of the iceberg, and ripped open 200 feet of her plating. It was a death wound! How deeply the iceberg cut into the fabric of the ship will never be known.

This question refers to **Excerpt from An Unsinkable Titanic (adapted)**

26. Which quotation **best** supports the inference that the tragedy of the *Titanic* was out of the crew's control?

A. "The evidence shows that Captain Smith remarked to the officer on duty, 'If it is even slightly hazy, we shall have to go very slowly.'" (paragraph 3)
B. "The fate of that ship and her precious freight of human life hung upon the mere chance of sighting an obstruction in time to avoid collision by a quick turn of the helm." (paragraph 5)
C. "A ship like this, more than a thousand feet in length, makes a wide sweep in turning, even with the helm hard over." (paragraph 5)
D. "Although she was the latest product of the shipbuilder's art, she was about to brush elbows with another kind of giant." (paragraph 6)

This question refers to **Excerpt from An Unsinkable Titanic (adapted)**

27. Read the sentence from paragraph 9.

For all we know, she may now be standing there, a sublime memorial to the fifteen hundred souls who perished in this unspeakable tragedy.

What is the role of the phrase sublime memorial in the sentence?

A. It describes the ship as renowned to demonstrate its superiority to other shipwrecks.
B. It portrays the ship in mournful language to show respect and to honor its victims.
C. It establishes the negligent actions of the crew to assign blame for the tragedy.
D. It describes the ship's location as mysterious to create further interest in the event.

This question refers to **Excerpt from An Unsinkable Titanic (adapted)**

28. Read the sentences on the left. Identify whether each sentence **does** or **does not** strongly support the author's primary argument in the passage.

Sentences	Does Support	Does Not Support
The *Titanic* received four messages warning the crew of ice.	◯	◯
The lookouts were given specific instructions to look for ice.	◯	◯
Despite warnings of ice, the crew increased the speed of the ship.	◯	◯
The passengers were unsuspecting of the dangers they were about to experience.	◯	◯
There were enough lifeboats on the ship for 1,000 people.	◯	◯

COMMONLIT

Name: _____ Class: _____

Thai cave boys: the psychology of surviving underground

By Sarita Robinson
2018

In June and July of 2018, 12 boys and their coach were trapped in a cave in Thailand for 18 days. In this informational text, Sarita Robinson explores the challenges of surviving underground for that length of time. As you read, take notes on the physical and mental effects of being in the situation the boys and their coach were in.

[1] When 12 young footballers[1] and their coach entered the Tham Luang Nang Non cave in Thailand, it was supposed to be a fun outing after football practice. But when a torrent[2] of flood water rushed in after heavy rain, the group became trapped on a small rock shelf deep inside the cave's vast network of tunnels.

"Descent into the lava tunnel in Iceland" by Ruslan Valeev is licensed under CC0

It was nine days before two British divers, John Volanthen and Richard Stanton, located the group — mercifully[3] alive and apparently in good physical and mental health. But how do people cope with such life-threatening events? And why is it important to focus on psychological, as well as physiological[4] impact?

When the boys first became aware that they were facing a life-threatening situation they would have experienced a number of physiological reactions. Fight or flight responses, such as an increase in heart rate, would have kicked in immediately, designed to help us stay alive.

But despite their physiological benefits, these neurochemical changes can affect our brain, and impair our mental functioning. During the initial stages of an emergency situation our brains may perform poorly, potentially resulting in poor decision-making and memory failures. Fortunately, when the flood waters came crashing in, the Thai footballers and coach appear to have remained level headed. They were able to control feelings of panic, and made the rational decision to find a safe place and wait.

[5] As the immediate danger from the flood waters receded, more long-term survival needs will have come into focus. Everyone knows that the human body has basic physical requirement: an adequate supply of food, water and warmth. What people often forget is that brain function is also sensitive to environmental factors. When exposed to the elements, dehydrated, hungry, or suffering from sleep deprivation, the human brain cannot function within its normal operating parameters.

1. In some areas of the world, "football" refers to "soccer".
2. a strong and fast-moving stream of water
3. to one's great relief
4. relating to how an organism functions

In these conditions people can make poor decisions which can put them at risk. The Thai footballers seem to have managed to keep themselves hydrated, and although they were clearly hungry when they were found, they appeared cognitively[5] intact, looking alert and asking appropriate questions. Again, this shows that the boys and their coach managed to stay both physically and psychologically healthy during the nine long days they spent waiting in the dark.

In a survival situation, your mental health is just as important as your physical health. Maintaining a positive attitude is crucial: people who remain optimistic are more likely to think that adverse events are controllable, and so are more likely to undertake positive behaviours to try and survive. Pessimistic thinking increases feelings of anxiety and helplessness, which can stop people from trying to proactively[6] improve their situation.

In extreme cases, people can give up mentally, withdraw into themselves, and even die. This is known as psychogenic death, essentially giving up. From the early footage, the footballers seem to have managed to stay positive while awaiting rescue. They are seen laughing and joking with the divers — a very promising sign.

Another way to maintain mental strength is to draw on any social support available in the situation. This can be a friend or family member: anyone you feel you can count on in a time of need. It is thought that this kind of support can act as a buffer, and when we face danger in good company we perceive the situation to be less threatening than we would if we were alone. The fact that the Thai footballers have been able to draw on each other through their ordeal will have been a big boost to their mental health.

[10] Currently the footballers appear in good spirits, so the next challenge is to remove them safely from the cave.[7] Two main options have been put forward. First, teaching them to swim and use diving equipment, so they can leave the cave the same way their rescuers came in. Or option two, to leave the boys in the cave for the duration of the rainy season, which could last four to five months.

This is certainly possible, and we know that people frequently live, and adapt well in extreme environments. Sailors on submarines or yachts can spend long periods living in cramped conditions, as long as their basic needs are met and they adjust psychologically to their living conditions. In fact, in 2010 a group of 33 Chilean miners survived 69 days before they were rescued.

Once, hopefully, the 12 boys and their coach are rescued they will need to re-adapt to their everyday lives, and some are worried that they might suffer long-term mental health problems as a result of their experience. To this day some of the Chilean miners report struggling to hold down jobs and some experience harrowing[8] flashbacks to their time spent underground.

Hopefully the boys won't be trapped for nearly so long. And, while they may experience short-term adverse effects, it's likely that with the support of their friends and family, they will recover. In some cases people have even reported experiencing positive outcomes after being exposed to traumatic events. Nevertheless they should be closely monitored after their ordeal, and if after a period of watchful waiting psychologists are still concerned, then psychological support can be offered.

5. relating to mental processes
6. **Proactive** ***(adjective):*** creating or controlling a situation, rather than merely responding to it
7. at the time of publication of this article, the boys had not yet been rescued from the cave
8. **Harrowing** ***(adjective):*** very distressing

Text-Dependent Questions

Directions: For the following questions, choose the best answer or respond in complete sentences.

1. PART A: Which statement identifies the central idea of the text?
   A. The boys trapped in the cave were able to stay fed and properly hydrated, which helped them maintain their mental functions and stay calm.
   B. Living through a traumatic incident, like being trapped in a cave, is not likely to have immediate physical and mental affects, but they are likely to show up later.
   C. The boys trapped in the cave showed amazing mental strength, despite the strain the traumatic experience likely put on their minds and bodies.
   D. Children are better able to recover from traumatic experiences because of their strong physical health and their still developing minds.

2. PART B: Which detail from the text best supports the answer to Part A?
   A. "The Thai footballers seem to have managed to keep themselves hydrated, and although they were clearly hungry when they were found, they appeared cognitively intact, looking alert and asking appropriate questions." (Paragraph 6)
   B. "Another way to maintain mental strength is to draw on any social support available in the situation. This can be a friend or family member: anyone you feel you can count on in a time of need." (Paragraph 9)
   C. "First, teaching them to swim and use diving equipment, so they can leave the cave the same way their rescuers came in. Or option two, to leave the boys in the cave for the duration of the rainy season, which could last four to five months." (Paragraph 10)
   D. "Once, hopefully, the 12 boys and their coach are rescued they will need to re-adapt to their everyday lives, and some are worried that they might suffer long-term mental health problems as a result of their experience." (Paragraph 12)

3. Which of the following best describes the author's purpose in the text?
   A. to encourage readers to take care of their minds over their bodies during an emergency
   B. to prove that children are mentally and physically stronger than we give them credit for
   C. to highlight the amazing bravery of the boys trapped and the experts rescuing them
   D. to show how people's minds impact and are impacted by a life-threatening incident

4. How do paragraphs 7-8 contribute to the development of ideas in the text?
   A. They show how remaining physically healthy is only slightly more important than having a positive attitude.
   B. They provide suggestions for what readers can do to strengthen their mental processes and positivity.
   C. They suggest that people are more likely to die in a life-threatening situation from a psychogenic death than anything physical.
   D. They emphasize the importance of being mentally strong and positive when trying to survive something life-threatening.

Discussion Questions

Directions: Brainstorm your answers to the following questions in the space provided. Be prepared to share your original ideas in a class discussion.

1. In the text, the author describes how the boys were able to remain physically and mentally sound. Describe a time when you encountered something difficult but you maintained your physical and mental health. What did you do to take care of yourself?

2. In the text, the author describes how fear can help us survive, but it can also lead to negative psychological effects. Describe a time when felt fear taking over in your brain. How could this be deadly in a life-or-death situation?

Math

Name: _____

Date: _____ Bell: _____

Algebra 2

1. Which expression is equivalent to $\sqrt[3]{324a^{27}b^{8}}$?

A. $3a^3b^2\sqrt[3]{12}$

B. $3a^9b^2\sqrt[3]{12b^2}$

C. $18a^3b^2$

D. $18a^9b^2\sqrt[3]{b^2}$

2. Which expression is equivalent to $\sqrt[4]{8x^7y^3}\cdot\sqrt[4]{32xy^{10}}$?

A. $64x^{\frac{7}{4}}y^{\frac{15}{2}}$

B. $64x^2y^{\frac{13}{4}}$

C. $4x^{\frac{7}{4}}y^{\frac{15}{2}}$

D. $4x^2y^{\frac{13}{4}}$

3. Which expression is equivalent to $2\sqrt{48}-(2+\sqrt{12})(5-\sqrt{12})$?

A. $2\sqrt{3}+2$

B. $2\sqrt{3}-2$

C. $4\sqrt{3}+17$

D. $4\sqrt{3}-17$

4. Which expression is equivalent to $(-\sqrt{8}\cdot\sqrt{2})+\sqrt{-36}$?

A. $2i$

B. $-10i$

C. $-4+6i$

D. $-4-6i$

5. Which expression is equivalent to $-i$?

A. $(i^{15})^3$

B. $(i^6)^7\cdot(i^5)^4$

C. $(1+i)(1-i)$

D. $i^{12}\cdot(i^{13})^3$

6. Which expression is equivalent to $(-7+2i)+6i-(11-15i)$?

A. $-18+23i$

B. $-18-7i$

C. $-4+23i$

D. $-4-7i$

7. Which is a true statement?

A. $m^2-n^2=(m-n)(m-n)$

B. $m^2+n^2=(m+n)(m+n)$

C. $m^3-n^3=(m-n)(m^2+mn+n^2)$

D. $m^3+n^3=(m+n)(m^2+mn+n^2)$

8. Which is the factored form of $64p^3+125$?

A. $(4p+5)^3$

B. $(4p+5)(16p^2+20p+25)$

C. $(4p-5)(16p^2-20p+25)$

D. $(4p+5)(16p^2-20p+25)$

9. Assuming the denominator does not equal zero, simplify the expression below.

$$\frac{6n^2-23n+7}{8n^3-28n^2}\div\frac{1-9n^2}{2n^2-10n}$$

A. $\frac{-2n(n-5)}{3n+1}$

B. $\frac{-(n-5)}{2n(3n+1)}$

C. $\frac{-2n(3n+1)}{n-5}$

D. $\frac{-(3n+1)}{2n(n-5)}$

10. Assuming the denominator does not equal zero, simplify the expression below.

$$\frac{5k}{k-2}-\frac{k}{k+2}$$

A. $\frac{4k(k+3)}{(k+2)(k-2)}$

B. $\frac{4k}{k-2}$

C. $\frac{4k}{(k+2)(k-2)}$

D. $\frac{4k(k-3)}{(k+2)(k-2)}$

11. Assuming no denominator equals zero, simplify the expression below.

$$\frac{\frac{1}{y^2}-\frac{x}{7y^2}}{\frac{1}{y}-\frac{7}{xy}}$$

A. $\frac{-y}{7-x}$

B. $-\frac{7y}{x}$

C. $\frac{-(x-7)}{y}$

D. $-\frac{x}{7y}$

12. What is the solution set for the equation below?

$$2|13-6x|-1=21$$

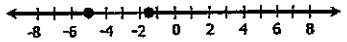
A. $\left\{-4,-\frac{1}{3}\right\}$

B. $\left\{-4,\frac{1}{3}\right\}$

C. $\left\{\frac{1}{3},4\right\}$

D. $\left\{-\frac{1}{3},4\right\}$

13. Which inequality contains the solutions shown on the graph below?



A. $|4x-13|\geq 7$

B. $|4x-13|\leq 7$

C. $|4x+13|\geq 7$

D. $|4x+13|\leq 7$

14. What is the solution to the following equation?

$$(x-4)^2=28?$$

A. $x=4\pm 2\sqrt{7}$

B. $x=-4\pm 2\sqrt{7}$

C. $x=2$ or $x=6$

D. $x=-6$ or $x=-2$

15. Which equation has exactly one solution?

A. $3x^2-2=-8$

B. $2x^2-14=4x-1$

C. $5x^2-4x-6=x^2-7$

D. $6x^2=18-23x$

16. What is the solution set to the following equation?

$$4m^2-8m+9=0$$

A. $m=1\pm 4i\sqrt{5}$ C. $m=-1\pm 4i\sqrt{5}$

B. $m=\frac{2\pm i\sqrt{5}}{2}$ D. $m=\frac{-2\pm i\sqrt{5}}{2}$

17. What is the solution set to the following equation?

$$x^4+2x^2-48=0$$

A. $\{\pm 2i\sqrt{2}, \pm\sqrt{6}\}$

B. $\{\pm i\sqrt{6}, \pm 2\sqrt{2}\}$

C. $\{\pm 2i\sqrt{2}, \pm 3\}$

D. $\{\pm i\sqrt{3}, \pm 2\sqrt{2}\}$

18. The solutions of the cubic function $f(x)$ are $-4, \frac{5}{3}$, and 1. Identify a factor of this function.

A. $3x+5$

B. $5x+3$

C. $x+1$

D. $x+4$

19. What is the solution to the following equation?

$$2\sqrt[3]{3x+1}-11=-3$$

A. $x=5$

B. $x=9$

C. $x=21$

D. $x=\frac{11}{3}$

20. What is the solution to the following equation?

$$\sqrt{a+9}=-3-a$$

A. $a=0$

B. $a=-5$

C. $a=\{0, 5\}$

D. $a=\{-5, 0\}$

21. If no denominator is equal to zero, what is the solution set for the following equation?

$$\frac{4v-3}{v^2}=\frac{5}{2v}$$

A. $\{2\}$ C. $\left\{-\frac{2}{5}, 2\right\}$

B. $\{-2\}$ D. $\left\{-\frac{2}{5}, \frac{2}{5}\right\}$

22. If no denominator is equal to zero, what is the solution to the following equation?

$$\frac{2k-5}{3k}-\frac{k+2}{4k}=\frac{k+6}{k}$$

A. $k=-14$ C. $k=-\frac{5}{12}$

B. $k=-\frac{12}{7}$ D. $k=-\frac{86}{7}$

23. Which expression is equivalent to $\log\sqrt{a^7b^{16}}$?

A. $\frac{7}{2}\log a+4\log b$ C. $\frac{7}{2}\log a+8\log b$

B. $\frac{2}{7}\log a-\frac{1}{4}\log b$ D. $\frac{2}{7}\log a-\frac{1}{8}\log b$

24. What is the solution to the following equation?

$$\log_2(4c-20)=6$$

A. $c=14$

B. $c=21$

C. $c=8$

D. $c=7$

25. What is the solution to the following equation?

$$2\cdot\log_4(x-1)=\log_4 48-\log_4 3$$

A. $x=\{-3, 5\}$

B. $x=\{-5, 3\}$

C. $x=3$

D. $x=5$

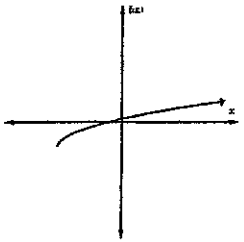
26. What is the solution to the following equation?

$$9^{2x-15}=\left(\frac{1}{27}\right)^{4x}$$

A. $x=-\frac{4}{15}$ C. $x=-\frac{15}{4}$

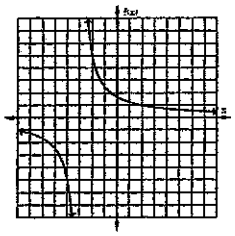
B. $x=\frac{8}{15}$ D. $x=\frac{15}{8}$

27. The graph of a function is shown below. Which family could this function belong to?



A. Exponential
B. Logarithmic
C. Square Root
D. Cube Root

28. Which function is best represented by this graph?



A. $f(x)=\frac{5}{x+3}$
B. $f(x)=\frac{5}{x-3}$
C. $f(x)=\frac{x+5}{x+3}$
D. $f(x)=\frac{x+5}{x-3}$

29. During which interval is the graph of the function below only increasing?

$$f(x)=x^3+9x^2+24x+15$$

A. $-\infty<x<\infty$
B. $-\infty<x<-2$
C. $-5<x<-2$
D. $-2<x<\infty$

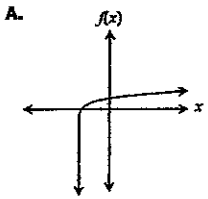
30. What is a zero of the function below?

$$f(x)=3^x-243$$

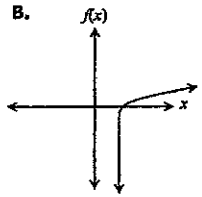
A. $x=-5$
B. $x=5$
C. $x=-9$
D. $x=9$

31. Which graph could represent the function $f(x)=\log(x-c)$ where $c>0$?

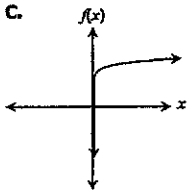
A.



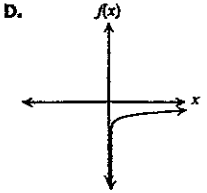
B.



C.



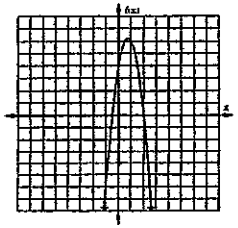
D.



32. Which of the following describes the end behavior of the function $f(x)=\sqrt[3]{x}-4$ as x approaches infinity?

A. $f(x)$ approaches 0
B. $f(x)$ approaches -4
C. $f(x)$ approaches ∞
D. $f(x)$ approaches $-\infty$

33. Which is an apparent root of the equation graphed below?



A. $\frac{1}{2}$
B. $-\frac{1}{2}$
C. -2
D. 4

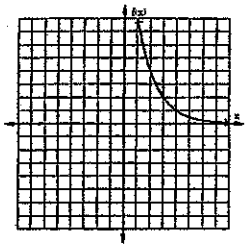
34. Which function does not have a range of the real numbers less than or equal to 0?

A. $f(x)=-(3-x)^2$
B. $f(x)=-|x-3|$
C. $f(x)=-\sqrt{3-x}$
D. $f(x)=\log(x-3)$

35. What is the equation of the horizontal asymptote of the function $f(x)=3^{x+2}-7$?

A. $y=0$
B. $y=2$
C. $y=3$
D. $y=-7$

36. Which function best represents this graph?



A. $f(x)=\left(\frac{1}{3}\right)^x+4$
B. $f(x)=\left(\frac{1}{3}\right)^{x+4}$
C. $f(x)=\left(\frac{1}{3}\right)^x-4$
D. $f(x)=\left(\frac{1}{3}\right)^{x-4}$

37. Which function has no restrictions in its domain?

A. $f(x)=\log(x-5)$
B. $f(x)=\sqrt{x-5}$
C. $f(x)=\sqrt[3]{x-5}$
D. $f(x)=\frac{1}{x+5}$

38. Comparing the function $f(x)=2|x-1|+6$ to its parent function, which transformation did not take place?

A. vertical translation
B. horizontal translation
C. vertical compression
D. vertical stretch

39. Which function decreases through the interval $-\infty<x<1$ and approaches $-\infty$ as x approaches ∞?

A. $f(x)=x^2-2x+3$
B. $f(x)=-x^2+2x-3$
C. $f(x)=x^3-6x^2+9x-6$
D. $f(x)=-x^3+6x^2-9x+6$

40. Which gives the vertical and horizontal asymptote of the following function?

$$f(x)=\frac{2x-3}{x+4}$$

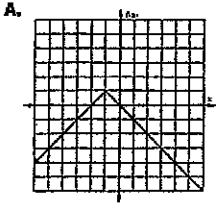
A. $x=-4$ and $y=2$
B. $x=4$ and $y=2$
C. $x=2$ and $y=-4$
D. $x=2$ and $y=4$

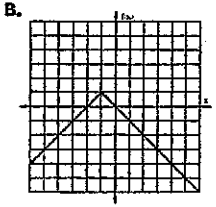
41. What is the solution set for the following system of equations?

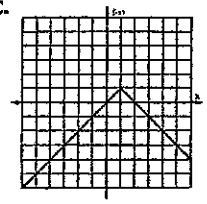
$$\begin{cases}2x-y=5\\ y=2x^2-2x-11\end{cases}$$

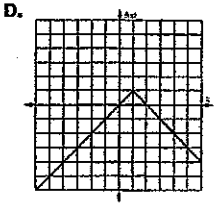
A. $\{\ \}$
B. $\{(1,3),(7,-1)\}$
C. $\{(-1,7),(3,1)\}$
D. $\{(-2,1),(2,-7)\}$

42. Which function represents the graph $f(x) \le -|x+1|+1$?

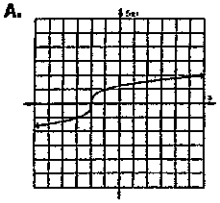
A. 

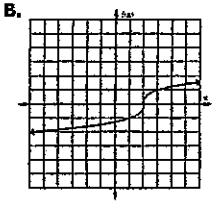
B. 

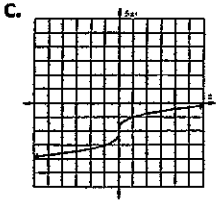
C. 

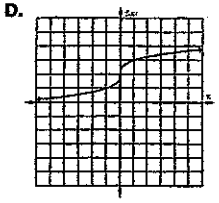
D. 

43. Which graph shows the inverse of the function $f(x)=(x+2)^3$?

A. 

B. 

C. 

D. 

44. The point (3, 4) lies on the graph of a function. The inverse of this function must contain which point?

A. (-3, -4)
B. (-3, 4)
C. (3, -4)
D. (4, 3)

45. If $f(x)=x^2+9x-14$ and $g(x)=x^2-x+3$, find $(f-g)(x)$.

A. $8x-11$
B. $8x-17$
C. $10x-11$
D. $10x-17$

46. If $f(x)=3x^2-15$ and $g(x)=1-\frac{2}{3}x$, find $(f \circ g)(-6)$.

A. 57
B. 60
C. -48
D. -61

47. The work W done when lifting an object varies jointly with the mass m of the object and the square of the height h that the object is lifted. Which equation represents the relationship between work, mass, and volume?

A. $W=kmh^2$
B. $W=\frac{k}{mh^2}$
C. $W=k(mh)^2$
D. $W=\frac{km}{h^2}$

48. Given: y varies directly as x squared and inversely as z cubed. If $y = 12$ when $x = 4$ and $z = 2$, find x when $y = 1.728$ and $z = 5$.

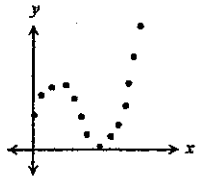
A. $x=6$
B. $x=18$
C. $x=27$
D. $x=36$

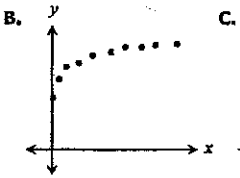
49. The table below shows the population of a city during certain years since 1992. Using an exponential model, estimate the population of the city in 2016.

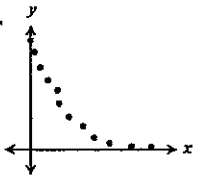
Year	Population
1992	95,242
1995	119,977
1998	151,137
2001	190,389
2004	239,935
2007	302,123

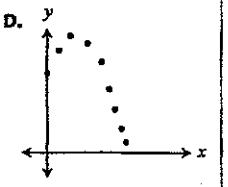
A. 594,164
B. 603,934
C. 617,228
D. 625,572

50. For which set of data would the equation for the curve of best fit most likely be cubic?

A. 

B. 

C. 

D. 

51. Given $\begin{cases} a_1 = 2 \\ a_n = 3 \cdot a_{n-1} - 1, \text{ for } n \ge 2 \end{cases}$, find a_5.

A. 41
B. 122
C. 365
D. 2,094

52. What is the 32nd term of an arithmetic sequence with a first term of 7 and a common difference of 4?

A. 119
B. 123
C. 127
D. 131

53. A ball is dropped from a height of 400 feet. Each time it hits the ground, it reaches a height that is three-fifths its previous height. Which formula represents the height of the ball after each bounce?

A. $a_n = 400\left(\frac{3}{5}\right)^{n-1}$
B. $a_n = \frac{3}{5}n + 400$
C. $a_n = 400\left(-\frac{3}{5}\right)^{n-1}$
D. $a_n = -\frac{3}{5}n + 400$

54. Given the series below, find S_{29}.

$$\{13+4+(-5)+(-14)+(-23)+\ldots\}$$

A. -2,480
B. -2,752
C. -3,016
D. -3,277

55. Evaluate: $\sum_{i=1}^{9} -3 \cdot (-5)^{i-1}$

A. 8,200
B. 195,312
C. -16,400
D. -292,968

56. Find the sum of the infinite series below.

$$\left\{36 - 24 + 16 - \frac{32}{3} + \ldots\right\}$$

A. 108
B. $\frac{108}{5}$
C. $\frac{84}{5}$
D. $\frac{91}{5}$

57. There are 12 girls and 10 boys in Mrs. Jones's kindergarten class. How many ways can she choose a line leader and caboose each day?

A. 111
B. 222
C. 231
D. 462

58. A pizzeria has a choice of 15 toppings and How many ways could someone choose 3?

A. 15
B. 455
C. 2,730
D. 3,375

59. The test scores of 1,200 students are normally distributed with a mean of 83 and a standard deviation of 5.5. Under which interval did approximately 978 students score?

A. $72 < x < 88.5$
B. $77.5 < x < 88.5$
C. $83 < x < 94$
D. $72 < x < 94$

60. The fitness center held a weight loss competition in which 128 people participated. The amount of weight loss was normally distributed with a mean of 18 pounds and a standard deviation of 5.4 pounds. Approximately how many people lost at least 15 pounds?

A. 72
B. 78
C. 84
D. 90

Name: _____ Date: _____ Per: _____

Algebra 2

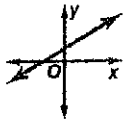
1. B	13. C	25. D	37. C	49. B
2. D	14. A	26. D	38. C	50. A
3. A	15. C	27. C	39. D	51. B
4. C	16. B	28. A	40. A	52. D
5. D	17. A	29. D	41. C	53. A
6. A	18. D	30. B	42. A	54. D
7. C	19. C	31. B	43. C	55. B
8. D	20. B	32. C	44. D	56. B
9. B	21. A	33. B	45. D	57. D
10. A	22. A	34. D	46. B	58. B
11. D	23. C	35. D	47. A	59. A
12. C	24. B	36. D	48. A	60. D

NAME _____ DATE _____ PERIOD ____

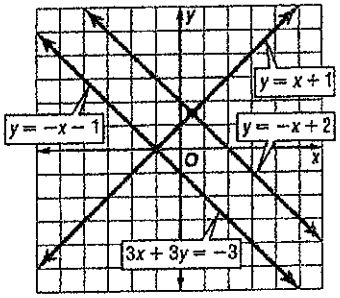
5-1 Study Guide and Intervention

Graphing Systems of Equations

Number of Solutions Two or more linear equations involving the same variables form a **system of equations**. A solution of the system of equations is an ordered pair of numbers that satisfies both equations. The table below summarizes information about systems of linear equations.

Graph of a System	intersecting lines	same line	parallel lines
			
Number of Solutions	exactly one solution	infinitely many solutions	no solution
Terminology	consistent and independent	consistent and dependent	inconsistent

Example **Use the graph at the right to determine whether the system has *no* solution, *one* solution, or *infinitely many* solutions.**



a. $y = -x + 2$
$y = x + 1$

Since the graphs of $y = -x + 2$ and $y = x + 1$ intersect, there is one solution.

b. $y = -x + 2$
$3x + 3y = -3$

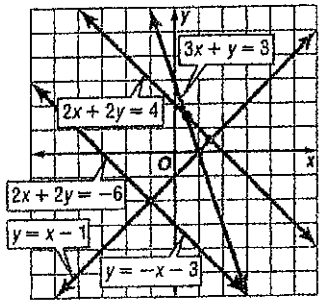
Since the graphs of $y = -x + 2$ and $3x + 3y = -3$ are parallel, there are no solutions.

c. $3x + 3y = -3$
$y = -x - 1$

Since the graphs of $3x + 3y = -3$ and $y = -x - 1$ coincide, there are infinitely many solutions.

Exercises

Use the graph at the right to determine whether each system has *no* solution, *one* solution, or *infinitely many* solutions.



1. $y = -x - 3$
$y = x - 1$

2. $2x + 2y = -6$
$y = -x - 3$

3. $y = -x - 3$
$2x + 2y = 4$

4. $2x + 2y = -6$
$3x + y = 3$

NAME _____ DATE _____ PERIOD ____

5-1 Study Guide and Intervention *(continued)*

Graphing Systems of Equations

Solve by Graphing One method of solving a system of equations is to graph the equations on the same coordinate plane.

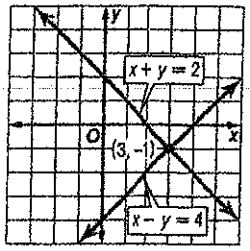
Example **Graph each system of equations. Then determine whether the system has *no* solution, *one* solution, or *infinitely many* solutions. If the system has one solution, name it.**

a. $x + y = 2$
$x - y = 4$

The graphs intersect. Therefore, there is one solution. The point (3, −1) seems to lie on both lines. Check this estimate by replacing x with 3 and y with −1 in each equation.

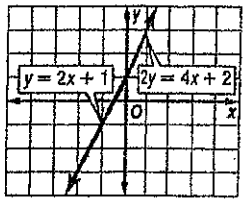
$x + y = 2$
$3 + (-1) = 2$ ✓
$x - y = 4$
$3 - (-1) = 3 + 1$ or 4 ✓

The solution is (3, −1).



b. $y = 2x + 1$
$2y = 4x + 2$

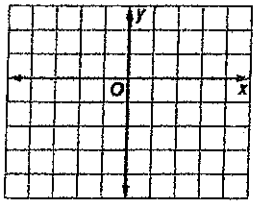
The graphs coincide. Therefore there are infinitely many solutions.



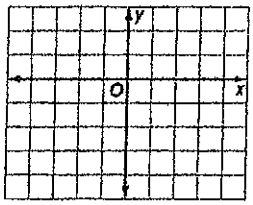
Exercises

Graph each system of equations. Then determine whether the system has *no* solution, *one* solution, or *infinitely many* solutions. If the system has one solution, name it.

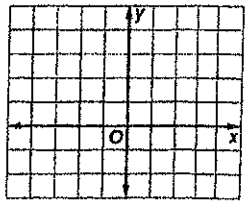
1. $y = -2$
$3x - y = -1$



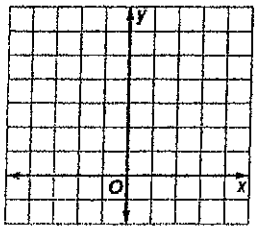
2. $x = 2$
$2x + y = 1$



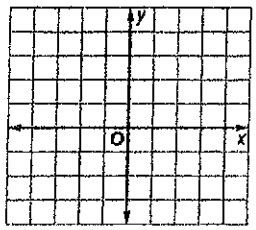
3. $y = \frac{1}{2}x$
$x + y = 3$



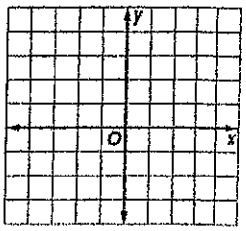
4. $2x + y = 6$
$2x - y = -2$



5. $3x + 2y = 6$
$3x + 2y = -4$



6. $2y = -4x + 4$
$y = -2x + 2$



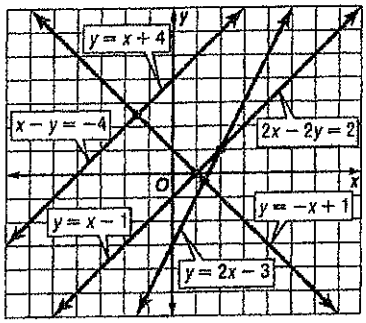
Lesson 5-1

NAME _____ DATE _____ PERIOD _____

5-1 Skills Practice

Graphing Systems of Equations

Use the graph at the right to determine whether each system has *no* solution, *one* solution, or *infinitely many* solutions.



1. $y = x - 1$
   $y = -x + 1$

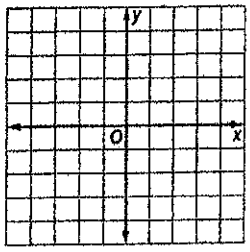
2. $x - y = -4$
   $y = x + 4$

3. $y = x + 4$
   $2x - 2y = 2$

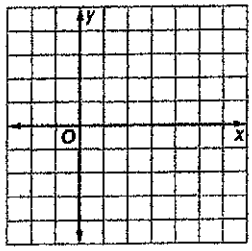
4. $y = 2x - 3$
   $2x - 2y = 2$

Graph each system of equations. Then determine whether the system has *no* solution, *one* solution, or *infinitely many* solutions. If the system has one solution, name it.

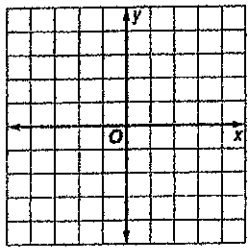
5. $2x - y = 1$
   $y = -3$



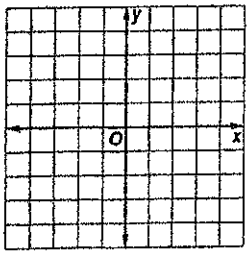
6. $x = 1$
   $2x + y = 4$



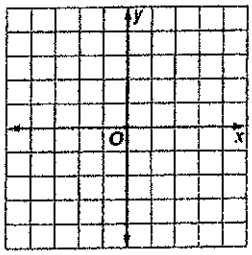
7. $3x + y = -3$
   $3x + y = 3$



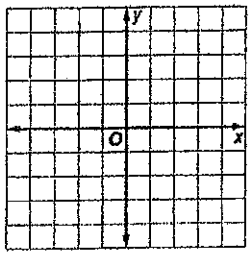
8. $y = x + 2$
   $x - y = -2$



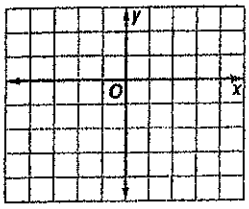
9. $x + 3y = -3$
   $x - 3y = -3$



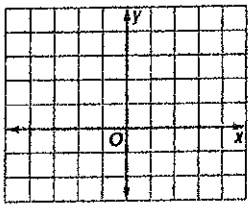
10. $y - x = -1$
    $x + y = 3$



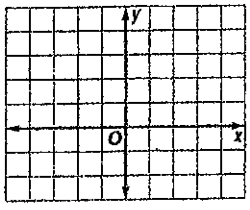
11. $x - y = 3$
    $x - 2y = 3$



12. $x + 2y = 4$
    $y = -\frac{1}{2}x + 2$



13. $y = 2x + 3$
    $3y = 6x - 6$



NAME _____ DATE _____ PERIOD ____

5-2 Study Guide and Intervention

Substitution

Substitution One method of solving systems of equations is **substitution.**

Example 1 **Use substitution to solve the system of equations.**

$y = 2x$
$4x - y = -4$

Substitute $2x$ for y in the second equation.

$4x - y = -4$	Second equation
$4x - 2x = -4$	$y = 2x$
$2x = -4$	Combine like terms.
$x = -2$	Divide each side by 2 and simplify.

Use $y = 2x$ to find the value of y.

$y = 2x$	First equation
$y = 2(-2)$	$x = -2$
$y = -4$	Simplify.

The solution is $(-2, -4)$.

Example 2 **Solve for one variable, then substitute.**

$x + 3y = 7$
$2x - 4y = -6$

Solve the first equation for x since the coefficient of x is 1.

$x + 3y = 7$	First equation
$x + 3y - 3y = 7 - 3y$	Subtract $3y$ from each side.
$x = 7 - 3y$	Simplify.

Find the value of y by substituting $7 - 3y$ for x in the second equation.

$2x - 4y = -6$	Second equation
$2(7 - 3y) - 4y = -6$	$x = 7 - 3y$
$14 - 6y - 4y = -6$	Distributive Property
$14 - 10y = -6$	Combine like terms.
$14 - 10y - 14 = -6 - 14$	Subtract 14 from each side.
$-10y = -20$	Simplify.
$y = 2$	Divide each side by -10 and simplify.

Use $y = 2$ to find the value of x.

$x = 7 - 3y$
$x = 7 - 3(2)$
$x = 1$

The solution is $(1, 2)$.

Exercises

Use substitution to solve each system of equations. If the system does *not* have exactly one solution, state whether it has *no* solution or *infinitely many* solutions.

1. $y = 4x$
   $3x - y = 1$

2. $x = 2y$
   $y = x - 2$

3. $x = 2y - 3$
   $x = 2y + 4$

4. $x - 2y = -1$
   $3y = x + 4$

5. $c - 4d = 1$
   $2c - 8d = 2$

6. $x + 2y = 0$
   $3x + 4y = 4$

7. $2b = 6a - 14$
   $3a - b = 7$

8. $x + y = 16$
   $2y = -2x + 2$

9. $y = -x + 3$
   $2y + 2x = 4$

10. $x = 2y$
    $0.25x + 0.5y = 10$

11. $x - 2y = -5$
    $x + 2y = -1$

12. $-0.2x + y = 0.5$
    $0.4x + y = 1.1$

NAME _____ DATE _____ PERIOD _____

5-3 Study Guide and Intervention

Elimination Using Addition and Subtraction

Elimination Using Addition In systems of equations in which the coefficients of the x or y terms are additive inverses, solve the system by adding the equations. Because one of the variables is eliminated, this method is called **elimination**.

Example 1 **Use addition to solve the system of equations.**

$x - 3y = 7$
$3x + 3y = 9$

Write the equations in column form and add to eliminate y.

$$\begin{array}{rr} x - 3y = & 7 \\ (+)\ 3x + 3y = & 9 \\ \hline 4x \qquad = & 16 \end{array}$$

Solve for x.

$$\frac{4x}{4} = \frac{16}{4}$$
$$x = 4$$

Substitute 4 for x in either equation and solve for y.

$$4 - 3y = 7$$
$$4 - 3y - 4 = 7 - 4$$
$$-3y = 3$$
$$\frac{-3y}{-3} = \frac{3}{-3}$$
$$y = -1$$

The solution is $(4, -1)$.

Example 2 **The sum of two numbers is 70 and their difference is 24. Find the numbers.**

Let x represent one number and y represent the other number.

$$\begin{array}{rr} x + y = & 70 \\ (+)\ x - y = & 24 \\ \hline 2x \qquad = & 94 \end{array}$$

$$\frac{2x}{2} = \frac{94}{2}$$
$$x = 47$$

Substitute 47 for x in either equation.

$$47 + y = 70$$
$$47 + y - 47 = 70 - 47$$
$$y = 23$$

The numbers are 47 and 23.

Exercises

Use elimination to solve each system of equations.

1. $x + y = -4$, $x - y = 2$
2. $2m - 3n = 14$, $m + 3n = -11$
3. $3a - b = -9$, $-3a - 2b = 0$
4. $-3x - 4y = -1$, $3x - y = -4$
5. $3c + d = 4$, $2c - d = 6$
6. $-2x + 2y = 9$, $2x - y = -6$
7. $2x + 2y = -2$, $3x - 2y = 12$
8. $4x - 2y = -1$, $-4x + 4y = -2$
9. $x - y = 2$, $x + y = -3$
10. $2x - 3y = 12$, $4x + 3y = 24$
11. $-0.2x + y = 0.5$, $0.2x + 2y = 1.6$
12. $0.1x + 0.3y = 0.9$, $0.1x - 0.3y = 0.2$

13. Rema is older than Ken. The difference of their ages is 12 and the sum of their ages is 50. Find the age of each.

14. The sum of the digits of a two-digit number is 12. The difference of the digits is 2. Find the number if the units digit is larger than the tens digit.

NAME_____ DATE_____ CLASS_____

ACT MATH QUICK PREP 011

1. What is the prime factorization of 72?

   A. $8 \cdot 9$
   B. $2^3 \cdot 9$
   C. $3^2 \cdot 8$
   D. $2^3 \cdot 3^2$
   E. $2^2 \cdot 3^3$

2. Which of the following is a solution of the equation $x^2 - x - 12 = 0$?

   A. -12
   B. -4
   C. -3
   D. 3
   E. 12

3. If $f(x) = x^2 - x$ and $g(x) = 2x - 1$, then $f(g(x)) = ?$

   A. $4x^2 - 6x + 2$
   B. $4x^2 - 6x$
   C. $4x^2 - 2x + 2$
   D. $4x^2 - 2x$
   E. $2x^2 - 2x - 1$

4. What is the slope of the line $4x - 2y = 9$?

   A. -2
   B. 2
   C. $\frac{1}{2}$
   D. $-\frac{1}{2}$
   E. $-\frac{9}{2}$

5. A cube has a volume of 27 cubic units. What is its surface area?

   A. 4.5
   B. 9
   C. 27
   D. 54
   E. 162

6. Which of the following is equivalent to $\csc^2\theta - \cot^2\theta$?

   A. -1
   B. 0
   C. 1
   D. $\sin^2\theta - \cos^2\theta$
   E. $\tan^2\theta - \sec^2\theta$

NAME_____ DATE_____ CLASS_____

ACT MATH QUICK PREP 012

1. What is $\frac{1}{6}$ of 30% of 120?

   A. 3
   B. 4
   C. 6
   D. 15
   E. 36

2. What is the solution set of the inequality $3-x>-3-x$?

   A. $x<6$
   B. $x>6$
   C. $x>-6$
   D. No solution
   E. Infinitely many solutions

3. What is the largest value of p for which there exists a real value q such that $p^2=169-q^2$?

   A. 13
   B. 26
   C. 156
   D. 169
   E. 338

4. What is the y-intercept of the line given by the equation $6x-5y=30$?

   A. -6
   B. $-\frac{6}{5}$
   C. $\frac{6}{5}$
   D. 5
   E. 6

5. A rhombus has diagonals of lengths 6 units and 8 units. What is the area of the rhombus in square units?

   A. 7
   B. 12
   C. 14
   D. 24
   E. 48

6. An *even* function is a function such that $f(x)=f(-x)$ for all x in the domain of $f(x)$. Which of the following trigonometric functions is an even function?

   A. $f(x)=\sin x$
   B. $f(x)=\csc x$
   C. $f(x)=\cos x$
   D. $f(x)=\tan x$
   E. $f(x)=\cot x$

NAME_____ DATE_____ CLASS_____

ACT MATH QUICK PREP 013

1. Which of the following is NOT a prime number?

   A. 67
   B. 87
   C. 97
   D. 107
   E. 127

2. Ken finished one-half of his homework problems at school. He finished two thirds of the remaining problems at home. He had 5 problems left. How many problems were there in total?

   A. 20
   B. 25
   C. 30
   D. 40
   E. 60

3. If $4^{x+2} = 8^{x-1}$, then $x = ?$

   A. -3
   B. -1
   C. 1
   D. 3
   E. 7

4. Which of the following equations describes a parabola with vertex $(3,2)$?

   A. $y=(x+3)^2+2$
   B. $y=(x+3)^2-2$
   C. $y=(x-3)^2-2$
   D. $y=(x-3)^2+2$
   E. $y=(x-2)^2+3$

5. The perimeter of a square is 24 inches. What is the area of the square?

   A. $16\ \text{in}^2$
   B. $36\ \text{in}^2$
   C. $48\ \text{in}^2$
   D. $64\ \text{in}^2$
   E. $144\ \text{in}^2$

6. If $0 \le \theta < 90°$, and $\tan\theta = \frac{2}{3}$, what is $\sin\theta + \cos\theta$?

   A. $\frac{5}{\sqrt{13}}$
   B. $\frac{6}{\sqrt{13}}$
   C. $\frac{5}{13}$
   D. $\frac{6}{13}$
   E. $\frac{5}{2\sqrt{13}}$

NAME_____ DATE_____ CLASS_____

ACT MATH QUICK PREP 014

1. A bag contains 15 blue chips and 10 red chips. If one chip is drawn at random, what is the probability that it will be red?

   A. $\frac{2}{3}$

   B. $\frac{3}{2}$

   C. $\frac{2}{5}$

   D. $\frac{3}{5}$

   E. $\frac{1}{2}$

2. If $x=-1$, then $-x^2+|x|=?$

   A. -2
   B. -1
   C. 0
   D. 1
   E. 2

3. Which of the following is a solution of the equation $x^2-9x=0$?

   A. -9
   B. -3
   C. 1
   D. 3
   E. 9

4. Which of the following linear equations is perpendicular to the line $3x-2y=8$ and passes through the point $(-3,2)$?

   A. $y=-\frac{2}{3}x$

   B. $y=-\frac{2}{3}x+4$

   C. $y=\frac{3}{2}x+\frac{13}{2}$

   D. $y=\frac{2}{3}x+4$

   E. $y=\frac{2}{3}x$

5. A circle has a circumference of 16π inches. What is the circle's area in square inches?

   A. 4π
   B. 8π
   C. 16π
   D. 32π
   E. 64π

6. What is $\frac{3\pi}{2}$ radians expressed in degrees?

   A. $90°$
   B. $135°$
   C. $270°$
   D. $360°$
   E. $1{,}500°$

NAME_____ DATE_____ CLASS_____

ACT MATH QUICK PREP 015

1. Maya's current average after 3 tests is 87. What must Maya score on her fourth test so that her average is 90?

   A. 9
   B. 89
   C. 90
   D. 93
   E. 99

2. What are the solutions of the equation $x^2+5x=6$?

   A. –6 and 1
   B. –1 and 6
   C. –5 and 0
   D. –5 and 6
   E. 5 and 6

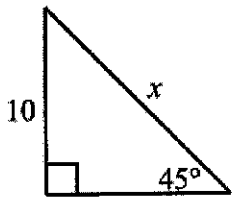
3. What are the solutions of the absolute value equation $|x+2|-1=-5$

   A. $\{-6,4\}$
   B. $\{-6,2\}$
   C. $\{-8,2\}$
   D. $\{-8,4\}$
   E. No solution

4. A parallelogram has coordinates $(-2,2)$, $(-3,-2)$, $(1,-2)$, and $(2,2)$ on the standard (x,y) coordinate plane. What is the parallelogram's area in units squared?

   A. 8
   B. 16
   C. 34
   D. 68
   E. $4\sqrt{17}$

5. What is the value of x in the right triangle below?



   A. 5
   B. 10
   C. 20
   D. $10\sqrt{2}$
   E. $10\sqrt{3}$

6. $\sin\theta\cdot\sec\theta=?$

   A. 1
   B. $\tan\theta$
   C. $\cot\theta$
   D. $\cos\theta$
   E. $\sin^2\theta$

Circle the correct answer.

1. Ten cars containing a total of 32 people passed through a checkpoint. If none of these cars contained more than 4 people, what is the greatest possible number of these cars that could have contained exactly 2 people?

(A) One

(B) Two

(C) Three

(D) Four

(E) Five

2. If $x + 2y = 1$, and $2x + y = 5$, then $x + y = ?$

(A) 1

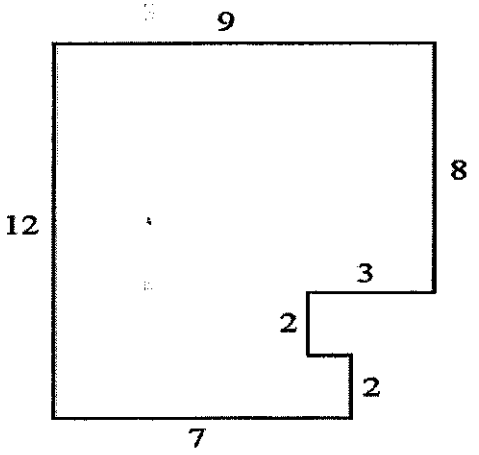
(B) 2

(C) 3

(D) 4

(E) 5

3.



In the figure above, all intersecting sides of the polygon meet at right angles. What is the area of the polygon?

(A) 108

(B) 104

(C) 102

(D) 98

(E) 96

4. There are n students in a class. If, among those students, $p\%$ have at least 1 pet, which of the following general expressions represents the number of students who have NO pet?

(A) np

(B) $.01np$

(C) $\frac{(100-p)n}{100}$

(D) $\frac{(1-p)n}{.01}$

(E) $100(1-p)n$

3, 6, 11, 18, ...

5. The first four terms of a sequence are shown above. Which of the following could be the formula that gives the n^{th} term of this sequence for all positive integers n?

(A) $2n$

(B) $2n+1$

(C) $3n$

(D) n^2+1

(E) n^2+2

6. If $a-b=b-3=6$, what is the value of a?

(A) -3

(B) 6

(C) 9

(D) 15

(E) 18

7. What is the largest possible product for 2 even integers whose sum is 34?

(A) 64

(B) 68

(C) 120

(D) 240

(E) 288

8. Triangle ABC is isosceles, and the measure of angle A is $74°$. What must be the measure of another angle of this triangle?

(A) $32°$

(B) $42°$

(C) $53°$

(D) $74°$

(E) It cannot be determined from the information given.

9. How many solutions are there to the equation $x^2 - 15 = 0$?

(A) 0
(B) 1
(C) 2
(D) 4
(E) 15

10. A 6-sided number cube, with faces numbered 1 through 6, is to be rolled twice. What is the probability that the number that comes up on the first roll will be less than the number that comes up on the second roll?

(A) $\frac{1}{4}$

(B) $\frac{1}{3}$

(C) $\frac{5}{12}$

(D) $\frac{7}{12}$

(E) $\frac{1}{2}$

Science

Name: _____ Class: _____ Date: _____

Consolidation Worksheet 1

What Are the Life Processes in Humans and Other Animals?

Complete the life processes shown in each picture on the left. Then match them to the correct sentences on the right. The first one has been done for you.

Movement •

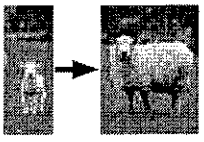
R_____ •

S_____ •

N_____ •

E_____ •

R_____ •



G_____ •

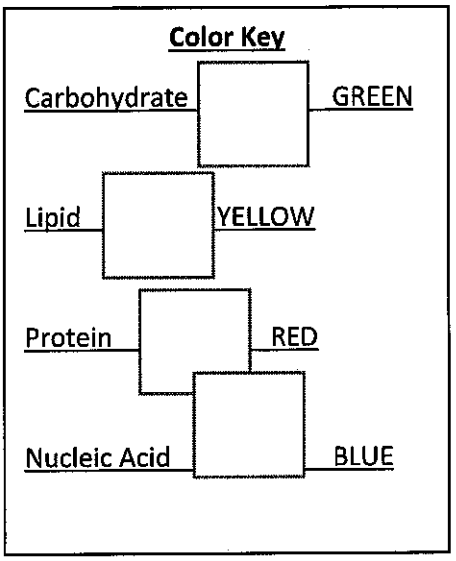
- Living things do this so that they will not become extinct.
- Animals need to eat food and drink water to survive.
- Animals do this to look for food and shelter, and to escape from danger.
- A living thing gets bigger and heavier over time.
- Living things respond to changes around them.
- The process by which nutrients taken in by animals are converted to energy.
- The process by which waste materials produced by the body are removed.

Name:_____ Period:_____

Color By Number: Biomolecules Edition

Instructions:

- Answer the questions below with one of the biomolecules. Carbohydrates, Lipids, Proteins or Nucleic Acids.
- When you finish answering the questions, color the fish using the color key.
- The numbers on the fish correspond to the number of each question.



Numbers:

1. Building blocks (monomers) are nucleotides: _____
2. Starch and glycogen are also examples: _____
3. Building blocks (monomers) are amino acids: _____
4. Stores genetic information for cell activities and making proteins: _____
5. Builds cell structures, hair, nails, horns, muscles: _____
6. Long term energy storage, insulation, found in cell membranes: _____
7. Examples include DNA and RNA: _____
8. Building blocks are glycerol and fatty acids: _____
9. Enzymes are examples of these: _____
10. The waxy coating on leaves (cuticle) is made of this: _____
11. Provides quick energy: _____
12. Building blocks (monomers) are monosaccharides like glucose: _____
13. Made of nucleotides held together by hydrogen bonds: _____
14. Provides insulation for marine mammals: _____
15. Found in plant cell walls in the form of cellulose: _____

Eukaryotes vs. Prokaryotes Cells

Last:_____First_____Pd_____

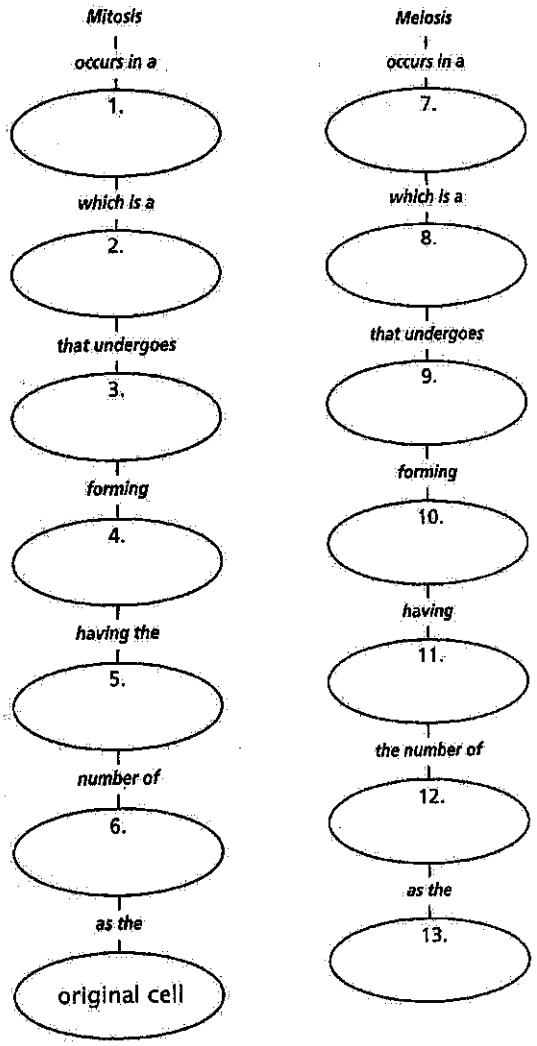
	Found In (check)			Function	Sketch
	Animal Eukaryotes	Plant Eukaryotes	Bacteria Prokaryotes		
1. Membrane bound Nucleus					
2. DNA					
3. Lysosomes					
4. Mitochondria					
5. Flagella					
6. Smooth ER					
7. Rough ER					
8. Golgi Apparatus					
9. Cytoplasm					
10. Ribosome					
11. Nucleolus					
12. Cell Wall					
13. Vacuole					
14. Chloroplast					

Sb1a..(standard) Explain the role of **cell organelles** for both **prokaryotic** and **eukaryotic** cells.

Name: _____ Period: _____ Date: _____

Mitosis vs. Meiosis

1. Complete the concept map comparing mitosis and meiosis. Use the following terms, each term can be used one or more times: *diploid cell, one cell division, four haploid cells, parent cell, two cell divisions, body cell, same, chromosomes, gamete-producing cell, half, two diploid cells.*



Parent Cell

2. Define homologous chromosome. _____

_____

3. Define sister chromatids. _____

_____

4. Describe 2 parts of meiosis that are similar to mitosis.

   a. _____

   _____

   b. _____

   _____

5. Identify whether each process below occurs during *mitosis, meiosis,* or *both.*

   a. Sister chromatids separate _____
   b. Haploid cells are formed _____
   c. Cell division occurs once _____
   d. Homologous chromosomes pair _____
   e. 4 haploid cells are the final result _____
   f. Crossing over occurs _____
   g. Cell division occurs twice _____
   h. Replicated chromosomes line up in the middle of the cell _____
   i. 2 diploid cells are the final result _____

6. Define crossing over. _____

_____

What phase does it occur? _____

7. Does the parent cell in Mitosis start off as diploid or haploid? _____ Are the resulting cells at the end of Mitosis diploid or haploid? _____

8. Does the parent cell in Meiosis start off as diploid or haploid? _____ Are the resulting cells at the end of Meiosis diploid or haploid? _____

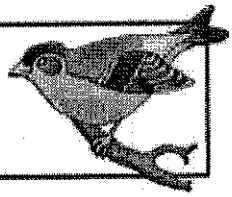
9. How does the number of chromosomes in a sex cell compare with the number of chromosomes in the parent cell? __

_____

Name: _____ Date: _____

Reinforcement: Evolution

cladogram	speciation	descent	frequency	vestigial
artificial	adaptations	homologous	evolution	hybrid
variation	selection	inheritance	fossils	finches



1. The theory that species change over time: _____
2. The offspring of two different species, such as a liger: _____
3. Refers to the number of individuals in a population with a trait: _____
4. The process by which evolution occurs; natural _____
5. Refers to differences in individual in a population, like light versus dark mice: _____
6. Refers to how traits are passed from parents to offspring _____
7. Traits that help organisms survive and reproduce: _____
8. Process by which humans create organisms with desirable traits: _____ selection
9. The idea that each living species descended from other species: common _____
10. A diagram that shows features common to groups or populations: _____
11. The formation of new species: _____
12. Remains of organisms that lived in the past: _____
13. Structures that are similar in related organisms, like bones of the arm: _____
14. A _____ structure is a part of the body that has no function; evidence of evolution.
15. Famous birds studied by Darwin on the Galapagos: _____

We studied different animals to understand evolution. Summarize how each of the examples below illustrate evolution by natural selection.

16. Rock pocket mice

17. Elephants (tusks)

18. Beaks of finches in the Galapagos

Biology

S E C O N D A R Y C O N S U M E R M E R

I T N O I T A Z I L I T R E F C O S P E

T Z R V P B P N C M Y E Q T E A X I Y C

A E Y A I H I E S A C E N E G R Y L T U

N X R O N T E I D N R A R S C R G A O D

D U T T R S T N A I N B R P P Y E S N O

N I X O I I L N O I G H O R M I N N E R

C O G E S A I A M T I R I N U N H E G P

M E I A S M R O T N Y M E S T G O M T W

N S R T O M D Y C I A P E E A C M M N R

G A I D P A A O C R O X E M T A O O E E

P N O L R I M R Y O L N I O I P L C G C

R C I T A P R C G I N T Z N O A O I R E

E C E N L U O C N O O S K H N C G T E S

D T G E O N T K S S D W U K R I O O V S

A K T W S L E U I N A A X M M T U I N I

T E N U T D C S M B A L L Q E Y S B O V

O E M O S O M O R H C R P C E R E A C E

R E P L I C A T I O N M T S I S O I E M

R S U C C E S S I O N T N E G R E V I D

ABIOTIC
CARRYINGCAPACITY
CLONING
CONVERGENT
DOMINANT
GENOTYPE
MEIOSIS
MUTUALISM
PARASITISM
PREDATOR
PRODUCER
SECONDARYCONSUMER
TERTIARYCONSUMER
TRANSLATION

BIOTIC
CHROMOSOME
CODOMINANCE
DIVERGENT
FERTILIZATION
HOMOLOGOUS
MITOSIS
NITROGEN
PEDIGREE
PREY
RECESSIVE
SEXLINKED
TETRAD

CARBON
CLADOGRAMS
COMMENSALISM
DNA
GENE
INCOMPLETE
MUTATION
OXYGEN
PHENOTYPE
PRIMARYCONSUMER
REPLICATION
SUCCESSION
TRANSCRIPTION

SCIENCE TEST

35 Minutes—40 Questions

DIRECTIONS: There are several passages in this test. Each passage is followed by several questions. After reading a passage, choose the best answer to each question and fill in the corresponding oval on your answer document. You may refer to the passages as often as necessary.

You are NOT permitted to use a calculator on this test.

Passage I

A study was conducted to examine whether female *Blattella germanica* (a species of cockroach) prefer to eat cat food, cheese, ham, or peanuts. First, 200 mg of each of the 4 foods was separately placed into a single box. Then, adult female *B. germanica* were added to the box. Figure 1 shows how the mass, in mg, of each food in the box changed over time after the addition of the *B. germanica*. Table 1 shows the percent by mass of carbohydrates, lipids, proteins, and water, respectively, present in each of the 4 foods tested in the study.

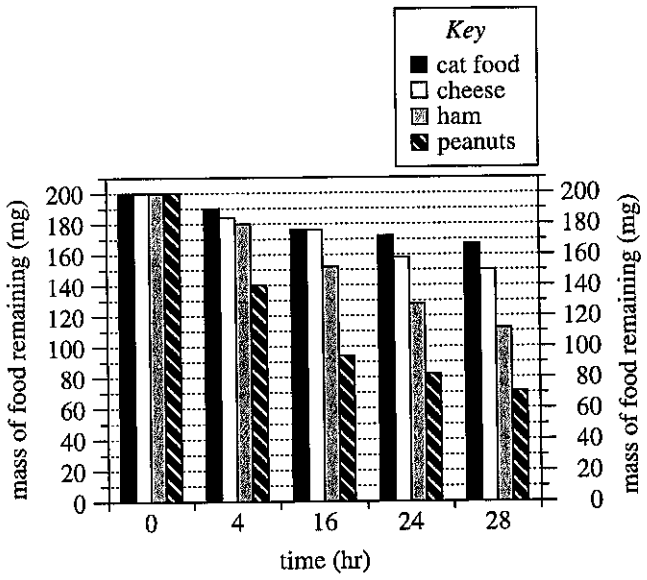


Figure 1

Figure adapted from Prachumporn Lauprasert et al., "Food Preference and Feeding Behavior of the German Cockroach, *Blattella germanica* (Linnaeus)." ©2006 by the Faculty of Science, Chulalongkorn University.

Table 1

Food	Percent by mass			
	carbohydrates	lipids	proteins	water
Cat food	1.2	6.0	16.9	66.2
Cheese	0.5	27.7	20.8	48.4
Ham	0.0	18.2	23.6	57.1
Peanuts	15.8	49.6	26.2	6.4

Table adapted from U.S. Department of Agriculture, *USDA National Nutrient Database for Standard Reference, Release 24*. 2011.

1. According to Figure 1, the mass of cheese remaining at 4 hr was closest to which of the following values?

   A. 140 mg
   B. 176 mg
   C. 185 mg
   D. 190 mg

2. Suppose a company wants to use food as bait in a trap designed to capture female *B. germanica*. Based on Figure 1, which of the 4 foods should the company place in the trap to maximize the chance of capturing female *B. germanica* ?

   F. Cat food
   G. Cheese
   H. Ham
   J. Peanuts

3. Consider the 4 foods in order of the percent by mass of proteins, from lowest to highest. From food to food, as the percent by mass of proteins increased, the mass of food remaining at 28 hr:

   A. increased only.
   B. decreased only.
   C. increased and then decreased.
   D. decreased and then increased.

4. Consider the statement "The *B. germanica* ate the food between 0 hr and 4 hr, between 4 hr and 16 hr, between 16 hr and 24 hr, and between 24 hr and 28 hr." This statement is consistent with the data in Figure 1 for how many of the 4 foods?

   F. 1
   G. 2
   H. 3
   J. 4

5. A student predicted that the *B. germanica* would eat less cat food than ham by the end of the study. Do the data in Figure 1 support this prediction?

   A. Yes; at 28 hr, the mass of cat food remaining was about 55 mg greater than the mass of ham remaining.
   B. Yes; at 28 hr, the mass of cat food remaining was about 95 mg greater than the mass of ham remaining.
   C. No; at 28 hr, the mass of cat food remaining was about 55 mg less than the mass of ham remaining.
   D. No; at 28 hr, the mass of cat food remaining was about 95 mg less than the mass of ham remaining.

6. Based on Table 1, when 200 mg of each of the 4 foods was placed in the box, water accounted for more than 100 mg of the mass of which food(s)?

   F. Peanuts only
   G. Cat food and ham only
   H. Cheese and peanuts only
   J. Cat food, cheese, and ham only

Passage II

A teacher provided the table below to the students in a science class. The table gives 5 properties for each of Samples A–H. The students were told to assume that each sample is a completely solid cube composed of a single hypothetical pure substance.

Sample	Mass (g)	Volume (cm^3)	Density (g/cm^3)	Melting point (°C)	Boiling point (°C)
A	8.0	4.0	2.0	126	747
B	8.0	4.0	2.0	342	959
C	6.0	3.0	2.0	237	885
D	6.0	3.0	2.0	237	885
E	8.0	2.0	4.0	126	747
F	8.0	2.0	4.0	126	747
G	4.0	1.0	4.0	126	747
H	4.0	1.0	4.0	342	959

Note: Assume that mass, volume, and density were determined at 20°C and that all 5 properties were determined at 1 atmosphere (atm) of pressure.

The teacher asked each of 4 students to explain how these data could be used to predict which samples are composed of the same substance.

Student 1

If 2 samples have the same values for all 5 properties, they are composed of the same substance. If 2 samples have different values for any of the 5 properties, they are composed of different substances.

Student 2

If 2 samples have the same values for any 3 or more of the 5 properties, they are composed of the same substance. If 2 samples have the same values for fewer than 3 of the 5 properties, they are composed of different substances.

Student 3

If 2 samples have the same mass, volume, and density, they are composed of the same substance. If 2 samples have different values for any of these 3 properties, they are composed of different substances. Neither melting point nor boiling point, by itself, can distinguish between substances.

Student 4

If 2 samples have the same density, melting point, and boiling point, they are composed of the same substance. If 2 samples have different values for any of these 3 properties, they are composed of different substances. Neither mass nor volume, by itself, can distinguish between substances.

7. Based on Student 1's explanation, the same substance composes both of the samples in which of the following pairs?

   A. Samples A and B
   B. Samples B and C
   C. Samples C and D
   D. Samples D and E

8. Based on Student 3's explanation, the same substance composes both of the samples in which of the following pairs?

   F. Samples A and C
   G. Samples B and E
   H. Samples F and G
   J. Samples G and H

9. Suppose that the temperature of Sample A is increased to 250°C at 1 atm of pressure. At 250°C, would Sample A be a solid or a liquid?

   A. Solid, because the melting point of Sample A is 126°C.
   B. Solid, because the melting point of Sample A is 747°C.
   C. Liquid, because the melting point of Sample A is 126°C.
   D. Liquid, because the melting point of Sample A is 747°C.

10. Consider the claim that 2 samples having the same density will always be composed of the same substance, regardless of the values of the other 4 properties. Which of the students, if any, would be likely to agree with this claim?

    F. Students 1 and 2 only
    G. Students 2, 3, and 4 only
    H. All of the students
    J. None of the students

11. Which of Students 2, 3, and 4 would be likely to agree that Sample A and Sample B are composed of the same substance?

    A. Students 2 and 3 only
    B. Students 2 and 4 only
    C. Students 3 and 4 only
    D. Students 2, 3, and 4

12. Consider the statement "Two samples that have the same mass, volume, density, and boiling point are composed of the same substance, even if the two samples have different melting points." Which of Students 2 and 4, if either, would be likely to agree with this statement?

    F. Student 2 only
    G. Student 4 only
    H. Both Student 2 and Student 4
    J. Neither Student 2 nor Student 4

13. Suppose that the temperature of Sample D is increased to 890°C at 1 atm of pressure. Will the sample's density be lower than or higher than it was at 20°C and 1 atm ?

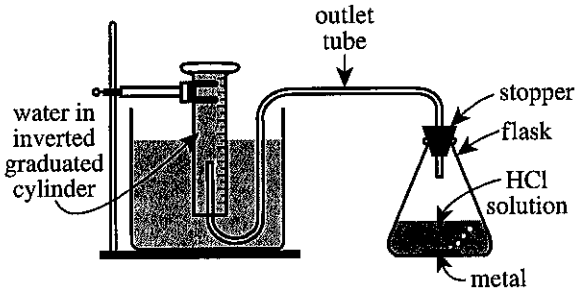
    A. Lower; Sample D will be a gas, and gases generally have lower densities than do solids.
    B. Lower; Sample D will be a liquid, and liquids generally have lower densities than do solids.
    C. Higher; Sample D will be a gas, and gases generally have higher densities than do solids.
    D. Higher; Sample D will be a liquid, and liquids generally have higher densities than do solids.

Passage III

When a solid metal (M) such as iron (Fe), nickel (Ni), or zinc (Zn) is placed in an aqueous hydrochloric acid (HCl) solution, a reaction that produces H_2 gas occurs:

$$M + 2HCl \rightarrow MCl_2 + H_2$$

Two experiments were conducted to study the production of H_2 in this reaction. The apparatus shown in the diagram below was used to collect the H_2 gas produced in each trial.



diagram

As H_2 was produced in the stoppered flask, it exited the flask through the outlet tube and displaced the water that had been trapped in the inverted graduated cylinder. (This displacement occurred because the H_2 did not dissolve in the water.) The volume of water displaced equaled the volume of gas (H_2 and water vapor) collected.

In each trial of the experiments, Steps 1–3 were performed:

1. The apparatus was assembled, and 25 mL of a 4 moles/L HCl solution was poured into the empty flask.
2. A selected mass of Fe, Ni, or Zn was added to the flask, and the stopper was quickly reinserted into the flask.
3. When H_2 production ceased, the volume of water that was displaced from the graduated cylinder was recorded.

The apparatus and its contents were kept at a selected temperature throughout Steps 2 and 3. The atmospheric pressure was 758 mm Hg throughout all 3 steps.

Experiment 1

In each trial, a selected mass of Fe, Ni, or Zn was tested at 30°C (see Figure 1).

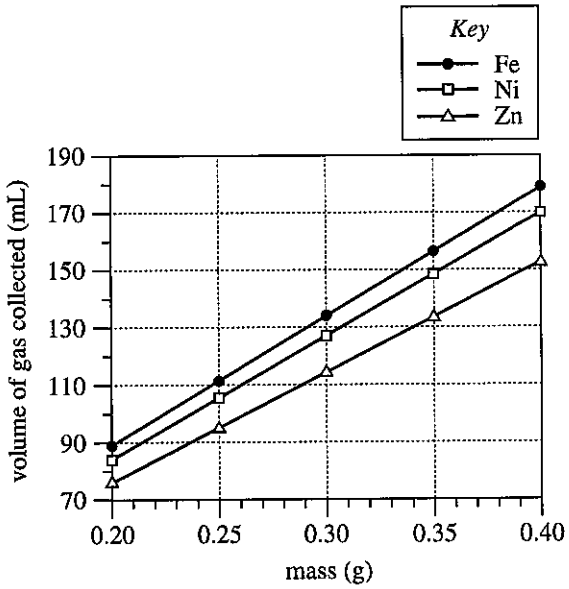


Figure 1

Experiment 2

In each trial, 0.30 g of Fe, Ni, or Zn was tested at a selected temperature (see Figure 2).

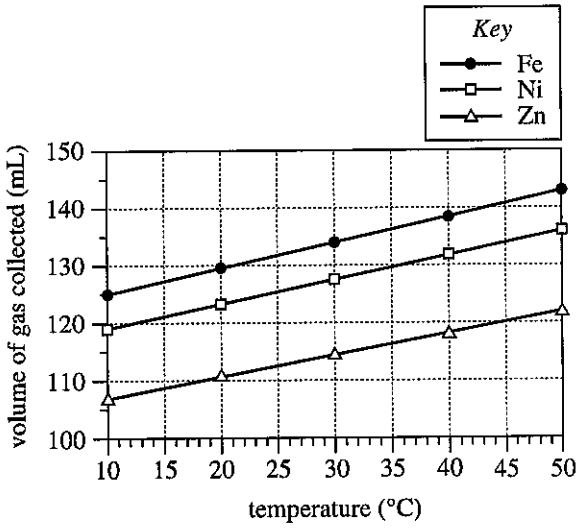


Figure 2

14. Consider the volume of gas collected in the trial in Experiment 2 for Ni at 30°C. The same approximate volume of gas was collected in the trial in Experiment 1 for what mass of Ni ?

F. 0.20 g
G. 0.25 g
H. 0.30 g
J. 0.35 g

15. How many temperatures were tested in Experiment 1, and how many temperatures were tested in Experiment 2 ?

	Experiment 1	Experiment 2
A.	1	1
B.	1	5
C.	5	1
D.	5	5

16. Which of the following statements describes a difference between Experiments 1 and 2 ? In Experiment 1:

F. only Fe was tested, but in Experiment 2, Fe, Ni, and Zn were tested.
G. Fe, Ni, and Zn were tested, but in Experiment 2, only Fe was tested.
H. the same mass value of each metal was tested, but in Experiment 2, multiple mass values of each metal were tested.
J. multiple mass values of each metal were tested, but in Experiment 2, the same mass value of each metal was tested.

17. Which of the following variables remained constant throughout both experiments?

A. Atmospheric pressure
B. Mass of metal
C. Temperature
D. Volume of gas collected

18. If a temperature of 5°C had been tested in Experiment 2, would the volume of gas collected for Zn more likely have been greater than 107 mL or less than 107 mL ?

F. Greater than 107 mL, because for a given metal, the volume of collected gas increased as the temperature decreased.
G. Greater than 107 mL, because for a given metal, the volume of collected gas increased as the temperature increased.
H. Less than 107 mL, because for a given metal, the volume of collected gas decreased as the temperature decreased.
J. Less than 107 mL, because for a given metal, the volume of collected gas decreased as the temperature increased.

19. Consider the balanced chemical equation in the passage. Based on this equation, if 10 moles of HCl are consumed, how many moles of H_2 are produced?

A. 5
B. 10
C. 15
D. 20

20. Suppose that the trial in Experiment 1 with 0.25 g of Zn is repeated, except that the inverted graduated cylinder is replaced by inverted test tubes, each completely filled with 60 mL of water. Based on Figure 1, how many test tubes will be needed to collect all the gas?

F. 1
G. 2
H. 3
J. 4

Key	Reporting Category* IOD	SIN	EMI
1. C	—		
2. J			—
3. B	—		
4. J			—
5. A			—
6. G	—		
7. C			—
8. J			—
9. C		—	
10. J			—
11. A			—
12. F			—
13. A	—		
14. H	—		
15. B		—	
16. J		—	
17. A		—	
18. H		—	
19. A	—		
20. G		—	

GO ON TO THE NEXT PAGE.

History

HOW A BILL BECOMES A LAW

About 25,000 bills are introduced in each term of Congress, but only 10 percent become law. These are the steps in the law-making process. A bill may begin in either the House or the Senate except for money bills, which must be introduced in the House.

1. **Bill is Drafted**: Members of Congress, the Executive Branch, and even outside groups can draft (write or draw up) bills.
2. **Introduced in House**: Representative introduces the bill in the House. Only members of the House of Representatives can introduce bills.
3. **Sent to Committee**: The Speaker of the House sends the bill to a committee.
4. **Committee Action**: Most bills die here. The committee may pigeonhole (ignore), table (review it later), amend, or vote on the bill. If bill passes, it goes to Rules Committee.
5. **Rules Committee**: It decides the rules for debate, and when the bill will come up for debate.
6. **Floor Action**: House debates the bill, and may add amendments. If a majority votes in favor of the bill, it goes to the Senate.
7. **Introduced in Senate**: A Senator introduces the bill, which is sent to a committee.
8. **Committee Action**: Same procedure as in the House. If the committee majority votes for the bill, it goes to the whole Senate.
9. **Bill Called Up**: Majority floor leader decides when the whole Senate will consider the bill.
10. **Floor Action**: The Bill is debated, and amendments may be added. If a majority votes in favor of the bill, it is returned to the House.
11. **Conference Committee**: If the House rejects any of the changes, the bill goes to a conference committee of members from both houses. It works out a compromise.
12. **Vote on Compromise**: Both houses must approve changes made by the conference committee. If approved, the bill goes to the president.
13. **Presidential Action**: The president may sign (approve) the bill or veto (reject) it. If approved, the bill becomes a law.
14. **Vote to Override**: If the president vetoes the bill, it can still become law if two thirds of both houses vote to override the veto.

Name _____

HOW A BILL BECOMES A LAW

Directions: *After review the steps in how a bill becomes a law, answer the following questions in complete sentences.*

1. Why do you think only 10% off the bills introduced in Congress become a law?

2. Where do most bills die? Why do you think that is?

3. What is the purpose of a conference committee?

4. How can a bill still become a law when the president vetoes it?

5. Why do you feel it is important that both the House of Representatives and Senate agree to a bill before it is sent to the President?

6. Why do you think the President has a say in which bills become laws?

7. Do you feel this process is an efficient one for new laws to be created? Explain.

8. If you could change or improve one way in which bills become laws, what would you do and why?

"OUR COUNTRY, RIGHT OR WRONG" DEFENDING THE VIETNAM WAR

Americans were deeply divided over U.S. involvement in the Vietnam War. In a letter written as he was about to leave for Vietnam, where he later died, Joseph E. Sintoni justified the war to his fiancée.

Dear Angela,

This is by far the most difficult letter I shall ever write. What makes it so difficult is that you'll be reading it in the unhappy event of my death. You've already learned of my death; I hope the news was broken to you gently. God, Angie, I didn't want to die. I had so much to live for. You were my main reason for living. You're a jewel, a treasure....

Please don't hate the war because it has taken me. I'm glad and proud that America has found me equal to the task of defending it. Vietnam isn't a far-off country in a remote corner of the world. It is Sagamore, Brooklyn, Honolulu, or any other part of the world where there are Americans. Vietnam is a test of the American spirit. I hope I have helped in a little way to pass the test.

The press, the television screen, the magazines are filled with the images of young men burning their draft cards to demonstrate their courage. Their rejection is of the ancient law that a male fights to protect his own people and his own land. Does it take courage to flaunt the authorities and burn a draft card? Ask the men at Dak To, Con Tien, or Hill 875; they'll tell you how much courage it takes.

Most people never think of their freedom... They never think much about breathing either, or blood circulating, except when these functions are checked by a doctor. Freedom, like breathing and circulating blood, is part of our being. Why must people take their freedom for granted? Why can't they support the men who are trying to protect their lifeblood, freedom?

Patriotism is more than fighting or dying for one's country. It is participating in its development, its progress, and its governmental processes. It is sharing the never fully paid price of the freedom which was bequeathed to us who enjoy it today. Not to squander, not to exploit, but to preserve and enhance for those who will follow after us.

Just as a man will stand by his family be it right or wrong, so will the patriot stand where Stephen Decatur stood when he offered the toast, "Our country, in her intercourse with foreign nations, may she always be in the right, but our country right or wrong."

We must do the job God set down for us. It's up to every American to fight for the freedom we hold so dear. We must instruct the young in the ways of these great United States. We mustn't let them take these freedoms for granted.

I want you to go on to live a full, rich, productive life. I want you to share your love with someone. You may meet another man and bring up a family. Please bring up your children to be proud Americans. Don't worry about me, honey. God must have a special place for soldiers.

I've died as I've always hoped, protecting what I do hold so dear to my heart. We will meet again in the future. We will. I'll be waiting for that day. I'll be watching over you, Angie, and if it's possible to help you in some way I will.

Feel some relief with the knowledge that you filled my short life with more happiness than most men know in a lifetime. The inevitable, well, the last one; I love you with all my heart and my love for you will survive into eternity.

Your Joey

From: *Shrapnel in the Heart: Letters and Remembrances from the Vietnam Veterans Memorial* By Laura Palmer

Name _____

"OUR COUNTRY, RIGHT OR WRONG" DEFENDING THE VIETNAM WAR

Directions: *After reading the letter, answer each question with a complete sentence.*

1. What do you think Sintoni means when he says, "Vietnam is a test of the American spirit"?

2. What does Sintoni think of men who burn their draft cards?

3. To Sintoni, why is freedom like breathing?

4. How does the quote from Stephen Decatur relate to Sintoni's argument?

5. How do you think Sintoni's fiancée reacted to receiving this letter?

6. What is your reaction to this letter?

7. Do you agree with Sintoni's argument about the Vietnam War? Explain.

Name: _____

Charles Dickens Visits America

In 1842 Charles Dickens was probably the most famous English language author in the world. He was received around the world as a major celebrity, often mobbed by fans. It was in that year that Dickens visited the United States. He wrote and published his thoughts about his visit in a book *American Notes for General Circulation.* Below is a passage about his visit to Washington, D.C.

Chapter VIII

Washington. The Legislature. And The President's House

The President's mansion is more like an English club-house, both within and without, than any other kind of establishment with which I can compare it. The ornamental ground about it has been laid out in garden walks; they are pretty, and agreeable to the eye; though they have that uncomfortable air of having been made yesterday, which is far from favourable to the display of such beauties.

My first visit to this house was on the morning after my arrival, when I was carried thither by an official gentleman, who was so kind as to charge himself with my presentation to the President.

We entered a large hall, and having twice or thrice rung a bell which nobody answered, walked without further ceremony through the rooms on the ground floor, as diverse other gentlemen (mostly with their hats on, and their hands in their pockets) were doing very leisurely. Some of these had ladies with them, to whom they were showing the premises; others were lounging on the chairs and sofas; others, in a perfect state of exhaustion from listlessness, were yawning drearily. The greater portion of this assemblage were rather asserting their supremacy than doing anything else, as they had no particular business there, that anybody knew of. A few were closely eyeing the movables, as if to make quite sure that the President (who was far from popular) had not made away with any of the furniture, or sold the fixtures for his private benefit.

After glancing at these loungers; who were scattered over a pretty drawing-room, opening upon a terrace which commanded a beautiful prospect of the river and the adjacent country; and who were sauntering, too, about a larger state-room called the Eastern Drawing-room; we went up-stairs into another chamber, where were certain visitors, waiting for audiences.

1. Dickens talks about the gardens having the "uncomfortable air of having been made yesterday." Explain how the garden might be a metaphor for the United States.

2. Write a short paragraph comparing the White House that Dickens describes and the White House of today. What is something that happened then that would not happen now. Why?

newsela

Loudspeakers make dead coral reefs sound healthy and fish swim to them

By Derek Hawkins, Washington Post on 12.13.19
Word Count **730**
Level **MAX**

Whitleys Slender Basslet fish swim between Mushroom Leather Corals and Luzonichthys whitleyi, Great Barrier Reef, Australia. When the scientists played the sounds of healthy coral ecosystems at damaged reefs in the northern part of the Great Barrier Reef, 50 percent more species showed up than at quiet sites. Photo by: Reinhard Dirscherl\ullstein bild via Getty Images

The desperate search for ways to help the world's coral reefs rebound from the devastating effects of climate change has given rise to some radical solutions.

In the Caribbean, researchers are cultivating coral "nurseries" so they can reimplant fresh coral on degraded reefs. And in Hawaii, scientists are trying to specially breed corals to be more resilient against rising ocean temperatures.

On November 29, British and Australian researchers rolled out another unorthodox strategy that they say could help restoration efforts: broadcasting the sounds of healthy reefs in dying ones.

In a six-week field experiment, researchers placed underwater loudspeakers in patches of dead coral in Australia's Great Barrier Reef and played audio recordings taken from healthy reefs. The goal was to see whether they could lure back the diverse communities of fish that are essential to counteracting reef degradation.

The results were promising, according to the researchers. The study, published in the journal Nature Communications, found that twice as many fish flocked to the dead coral patches where healthy reef sounds were played compared with the patches where no sound was played.

"Healthy coral reefs are remarkably noisy places — the crackle of snapping shrimps and the whoops and grunts of fish combine to form a dazzling biological soundscape," said Steve Simpson, a marine biology professor at the University of Exeter and a senior author of the study. "Juvenile fish home in on these sounds when they're looking for a place to settle."

According to the study, the number of species present in the reef patches where healthy sounds were played increased by 50 percent over the other patches. The new fish populations included species from all parts of the food web, such as scavengers, herbivores and predatory fish. Importantly, the fish that arrived at the patches tended to stay there.

"Reefs become ghostly quiet when they are degraded, as the shrimp and fish disappear," Simpson said, "but by using loudspeakers to restore this lost soundscape, we can attract young fish back again."

The technique, if it can be replicated on larger scales, could offer scientists another tool to revive coral reefs around the world that have been ravaged by climate change, overfishing and pollution in recent years. Scientists have warned that climate change may already be accelerating too quickly for some reefs to recover at all and that conservation efforts are not keeping pace with the devastation.

Severe coral bleaching triggered by extreme heat waves killed off 50 percent of the Great Barrier Reef, the planet's largest coral reef, in 2016 and 2017. Such bleaching events — which occur when the nutrient-rich and color-providing algae that live in corals are expelled because of heat stress — are occurring four times as frequently as they did in the 1980s, as The Washington Post has reported.

The researchers worked from October through December 2017 in a lagoon in the northern part of the Great Barrier Reef that has a large, shallow reef that runs along the coastline.

At the start of fish recruitment season, when fish spawn and mature, the team built 33 experimental reef patches out of dead coral on open sand about 27 yards from the naturally occurring reef. They then fixed underwater loudspeakers to the center of the patches, angling them upward to ensure the sound was distributed in all directions evenly.

Over the course of 40 nights, the team played recordings from a healthy reef in some of the patches. In other patches, they used dummy speakers that emitted no sounds, and they left a third group of patches untouched.

The process, called "acoustic enrichment," had a "significant positive impact on juvenile fish recruitment throughout the study period," the researchers wrote. The acoustically enriched reefs attracted fish more quickly and maintained them longer than the reefs without a healthy soundtrack, according to the study.

The researchers acknowledged that drawing fish back to dead or dying reefs will not reverse the damage by itself. But degraded reefs have a better shot at recovery if they have robust populations of fish, which play a variety of roles in keeping the coral healthy.

This article is available at 5 reading levels at https://newsela.com.

"Fish are crucial for coral reefs to function as healthy ecosystems," said the study's lead author, Tim Gordon, of the University of Exeter. "Boosting fish populations in this way could help to kick-start natural recovery processes, counteracting the damage we're seeing on many coral reefs around the world."

Quiz

1 Read the following selection from the article.

"Fish are crucial for coral reefs to function as healthy ecosystems," said the study's lead author, Tim Gordon, of the University of Exeter. "Boosting fish populations in this way could help to kick-start natural recovery processes, counteracting the damage we're seeing on many coral reefs around the world."

Which of the following conclusions can be drawn from the selection above?

(A) Boosting fish populations is all that is necessary to counteract the damage done to many coral reefs.

(B) Most coral reefs around the world have growing fish populations that are boosted artificially.

(C) Sizable fish populations are essential for coral reefs to recover from damage they have sustained.

(D) Coral reefs function as healthy ecosystems whenever nearby fish populations are increased.

2 Which of the following claims does the author support the LEAST?

(A) Climate change is having a devastating effect on coral reefs.

(B) Playing sounds of healthy reefs in dying ones attracts fish.

(C) Scientists are using a variety of strategies to help coral reefs.

(D) Playing sounds of healthy reefs in dying ones is an unorthodox plan.

3 Which of the following statements MOST accurately represents the relationship between the article's central ideas?

(A) Many of the world's coral reefs are experiencing extreme degradation because of climate change and other reasons; to counteract this degradation, scientists are trying to attract fish to the reefs by playing audio from healthy reefs through underwater loudspeakers.

(B) Many coral reefs in the world are experiencing extreme degradation because of climate change, overfishing and pollution; as a result, the reefs have become ghostly quiet as the shrimp and fish have completely disappeared from the reefs.

(C) Researchers did a six-week experiment involving underwater loudspeakers playing audio from healthy reefs in dying reefs; the goal of this experiment was to see if fish populations could be lured back to the dying reefs.

(D) A team of researchers built 33 experimental reef patches out of dead coral on open sand near a naturally occurring reef; the team then fixed underwater loudspeakers to the center of the patches and played audio of healthy reefs though the speakers.

4 Read the following two details from the article.

"Juvenile fish home in on these sounds when they're looking for a place to settle."

The process, called "acoustic enrichment," had a "significant positive impact on juvenile fish recruitment throughout the study period," the researchers wrote.

Select the option that BEST explains how these details develop a central idea of the article.

(A) The details show that juvenile fish are more affected by sound from loudspeakers than mature fish are.

(B) The details show that juvenile fish were attracted to the sounds they they heard through loudspeakers.

(C) The details illustrate the different steps involved when juvenile fish find a place to settle.

(D) The details suggest that juvenile fish were enriched because they were recruited for the study.

This article is available at 5 reading levels at https://newsela.com.

May 18th Packet

Ch. 20

Satellite state- A country that is economically and politically dependent on another country.

Policy of containment- a plan to keep something, such as communism, within its existing geographical boundaries and prevent further aggressive moves.

Arms race- Building up armies and stores of weapons to keep up with an enemy.

Deterrence- Security policy which holds that if two sides in a political conflict have huge arsenals of nuclear weapons, war can be prevented.

Domino theory- idea that, if one country falls to communism, neighboring countries will also fall.

Heavy industry- The manufacture of machines and equipment for factories and mines.

De-Stalinization- The process of eliminating Stalin's more ruthless policies.

Welfare state- A state in which the government takes responsibility for providing citizens with services such as healthcare.

Bloc- A group of nations with a common purpose

Real wages- The actual purchasing power of income

Ch. 21

Détente- A phase of relaxed tensions and improved relations between two adversaries.

Dissident- A person who speaks out against the regime in power

Perestroika- Gorbachev's plan to reform the Soviet Union by restructuring its economy

Ethnic cleansing- A policy of killing or forcibly removing an ethnic group from its lands.

Autonomous- Self-governing

Thatcherism- The economic policy of British Prime Minister Margaret Thatcher, limited social welfare and restricted union power.

Budget deficit- The state that exists when a government spends more than it collects in revenues.

Pop art- Artistic movement of early 1960s. Taking images from popular culture and transforming them into fine art.

Postmodernism- Artistic movement that emerged in 1980s. Artists do not expect rationality in the world and are comfortable with many truths.

Ch. 22

Multinational corporation- A company with divisions in more than two countries.

Magic realism- A form of expression unique to Latin American literature; it combines realistic events with dreamlike or fantastic backgrounds

Privatization- The sale of government-owned companies to private firms

Trade embargo- A policy prohibiting trade with a particular country

Contra- Rebels financed by U.S. who began a guerrilla war against Sandinista government in Nicaragua.

Cooperative- A farm organization owned by and operated for the benefit of the farmers

Shining Path- A radical guerrilla group in Peru with ties to Communist China

Ch. 23

Apartheid- Apartness

Pan-Africanism- The unity of all black African, regardless of national boundaries

Pan-Arabism- Arab unity, regardless of national boundaries

Intifada- Uprising

Ch. 24

Commune- China, 1950s, group of farmers contained more than 30,000

Permanent revolution- An atmosphere of constant revolutionary fervor favored by Mao Zedong to enable China to overcome the past and achieve final stage of communism.

Per capita- Per person

Stalemate- The condition that exists when neither of two opposing sides is able to make significant gains

Discrimination- Prejudice, based on race, religion, class, sex, or age

Occupied- Held by a foreign power

State capitalism- Economic system which the central government plays an active role in economy.

Ch. 25

Ecology- Study of relationships between living things and environment.

Deforestation- The clearing of forests.

Ozone layer- Thin layer of gas in upper atmosphere that shield the Earth.

Greenhouse effect- Global warming cause by buildup of carbon dioxide

Acid rain- Rainfall caused by sulfur produced by factories mixing with moisture in the air.

Bioethics- field of study with moral choices in medical research.

Biowarfare- Use of disease or poison against civilians and soldiers in wartime.

Bioterrorism- Use of biological and chemical weapons in terrorist attacks.

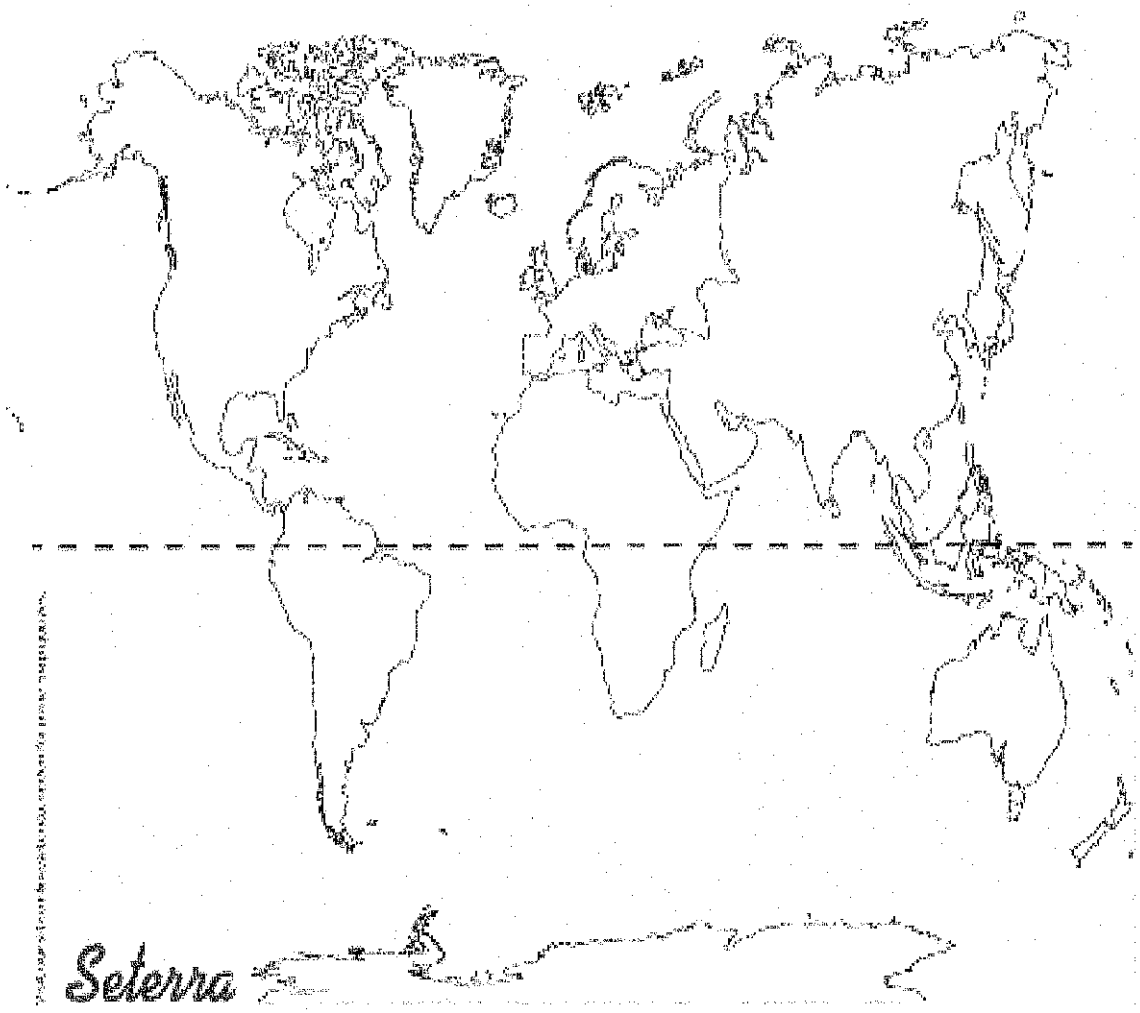
Global economy- An economy in which the production, distribution, and sale of goods take place on a worldwide scale, as in a multinational corporation

Peacekeeping force- Military force drawn from neutral members of the United Nations

Disarmament- A limit or reduction of armed forces and weapons

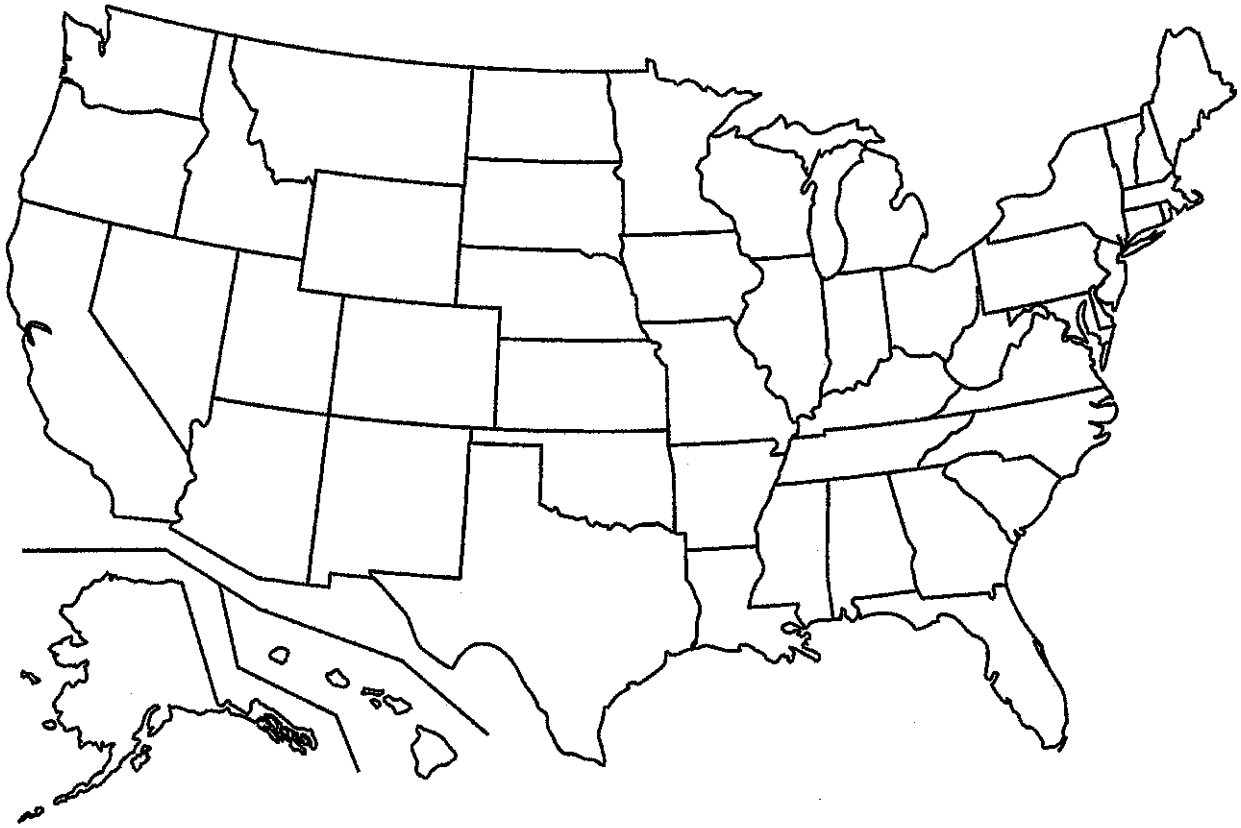
June 8th Packet

THE CONTINENTS



Label the continents:

South America, North America, Europe, Asia, Africa, Australia, Antarctica



Label the states

Alabama - AL

Alaska - AK

Arizona - AZ

Arkansas - AR

California- CA

Colorado - CO

Connecticut – CT

Delaware – DE

Florida – FL

Georgia – GA

Idaho - ID

Illinois - IL

Indiana - IN

Iowa - IA

Kansas – KS

Kentucky - KY

Louisiana – LA

Maine – ME

Maryland – MD

Massachusetts- MA

Michigan - MI

Minnesota - MN

Mississippi - MS

Missouri - MO

Montana - MT

Nebraska - NE

Nevada - NV

New Hampshire - NH

New Jersey – NJ

New Mexico – NM

New York – NY

North Carolina – NC

North Dakota – ND

Ohio - OH

Oklahoma – OK

Oregon - OR

Pennsylvania - PA

Rhode Island – RI

South Carolina - SC

South Dakota - SD

Tennessee - TN

Texas - TX

Utah - UT

Vermont - VT

Virginia - VA

Washington - WA

West Virginia - WV

Wisconsin - WI

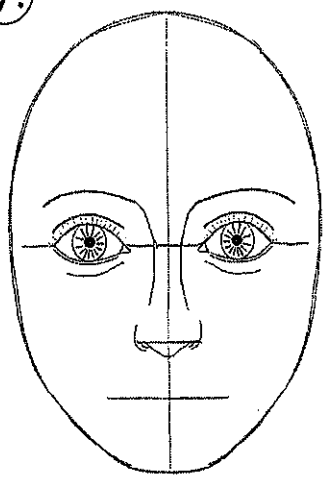
Wyoming - WY

Electives

A Basic Human Face

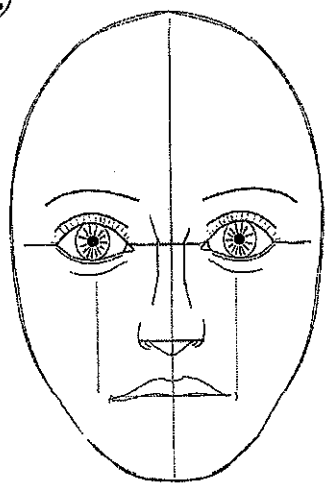
. . . continued

7.



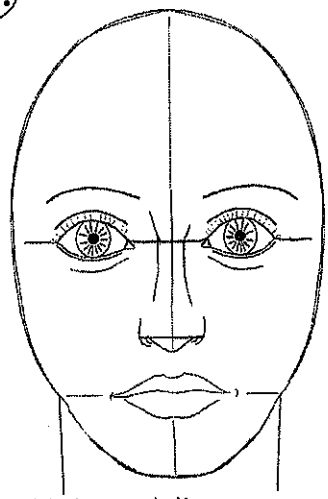
Add "spokes" in the iris and lines for the brows and sides of the nose. TIP #1: The sides of your nose are connected to your brows! TIP #2: The fattest part of the nose is the base, the thinnest part is between the brows. (think triangle shaped)

8.



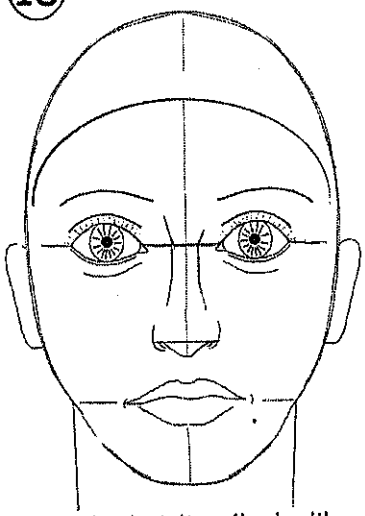
Start the lips. The mouth is usually as wide as the distance between the pupils.
TIP: Don't forget to add the "Cupid's Bow": the little divit at the top of the upper lip.

9.



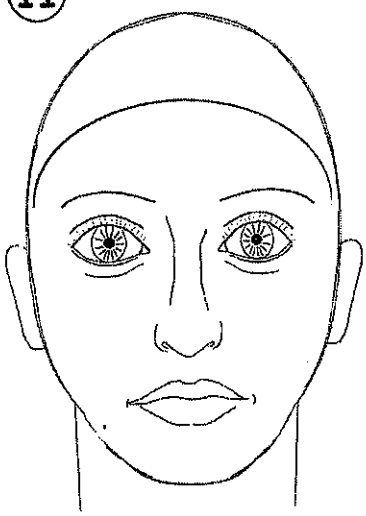
Add the neck lines.
TIP: The neck is about as wide as the edges of the mouth lines.
Add the bottom lip.
TIP: The bottom is usually fuller than the upper on MOST people.

10



Add the hairline (looks like a swim cap). Add the ears.
TIP: The top of the ear lines up with the eye line, the bottom of the ear lines up with the bottom of the nose.

11



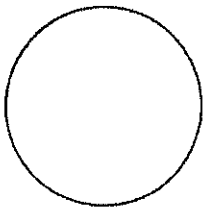
Erase the guide lines.

12

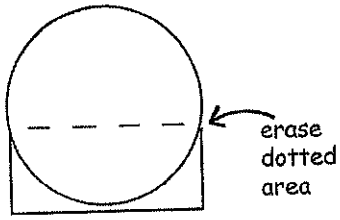
Add hair and shade.

Draw a Human Skull

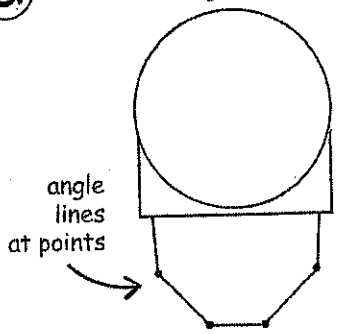
1. Start with a circle



2. Add a rectangle



3. Add jaw line



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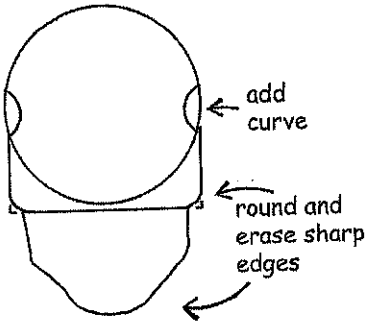

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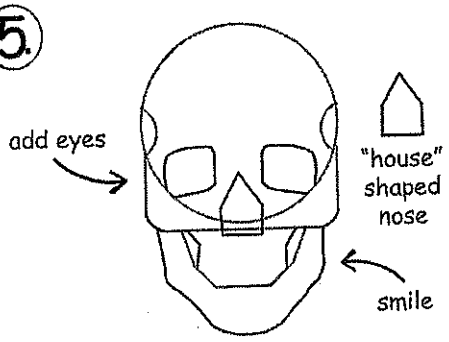
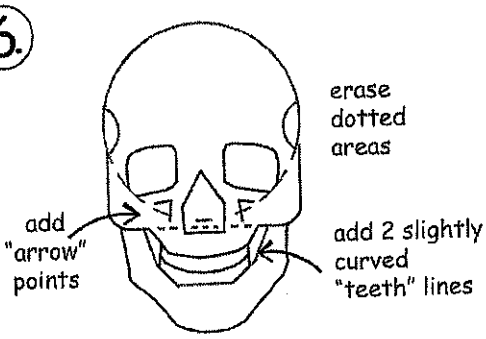


6.



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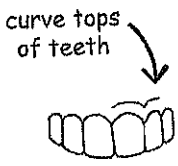
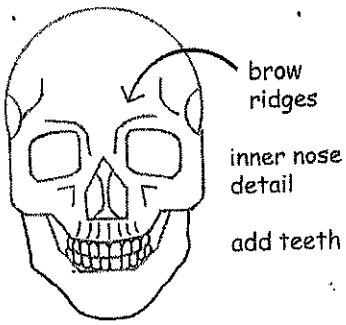
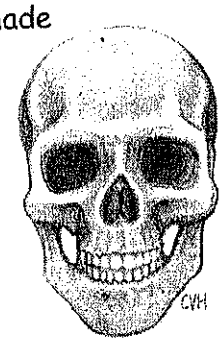




8. Shade



Name _____ Class _____ Date _____

Section 14-3 **Summary**

Your Eyes and Ears (pp. 356–363)

Objectives

- **Explain** how your eyes allow you to see.
- **Identify** two ways to keep your eyes healthy.
- **Explain** how your ears allow you to hear and maintain your balance.
- **Identify** ways to keep your ears healthy.

The eyes are complex organs that respond to light by sending impulses. Your brain then interprets the impulses as images. When rays of light strike the eye, they first strike the **cornea** (KAWR nee uh), the clear tissue that covers the front of the eye. The light then reaches the **pupil,** the opening through which light enters the eye. Pupils change in size depending on how much light is going into the eye. The **iris** is a circular structure that surrounds the pupil and regulates its size. The iris also contains pigments that give eyes their color.

The **lens** is a flexible structure that focuses light. Muscles attached to the lens adjust its shape to help focus on an object. Light rays become focused and pass through a clear, jellylike fluid and strike the **retina,** a layer of cells that lines the back of the eye. Rods and cones in the retina respond to light and send nerve impulses through the optic nerve to the brain.

It is important to protect your eyes from damage and to have regular eye exams. Wear protective goggles around harmful materials and around machinery. Wear sunglasses to protect eyes from UV light rays.

An **optometrist** is a professional who provides eye and vision care. Nearsightedness, farsightedness, and astigmatism can usually be corrected with eyeglasses or contact lenses. As a person ages, the eyes become susceptible to diseases such as cataracts and glaucoma. Sties and conjunctivitis are infections that can be treated with medications.

The ears convert sounds into nerve impulses that your brain interprets. In addition, structures in the ear detect the position and movement of your head. The ear has three regions. In the outer ear, vibrations are channeled through the ear canal to a thin membrane called the **eardrum.** The eardrum vibrates when sound vibrations strike it.

These vibrations are passed to three bones in the middle ear, which in turn pass the vibrations to the inner ear to a hollow, coiled tube filled with fluid called the **cochlea** (KAWK lee uh). Cells in the cochlea sense vibrations and send nerve impulses to the brain. Above the cochlea are the **semicircular canals,** structures that send information to your brain about the movements of your head.

Besides keeping your ears clean, you also need to monitor noise levels. In addition, you should see a doctor if you experience ear pain or hearing difficulties. Keep televisions and stereos at a level low enough to hear a person speaking at a normal level. Do not turn personal music players up to more than 60 percent of their possible volume. People with hearing problems see an **audiologist** (aw dee AHL uh jist). Audiologists are professionals who are trained to evaluate hearing and treat hearing loss.

Name _____ Class _____ Date _____

Section 14-3

Note Taking Guide

Your Eyes and Ears (pp. 356–363)

Your Eyes

1. Complete the table with details about the structures in your eyes.

Structure	Description
Cornea	a. _____
Pupil	b. _____
Iris	c. _____
Lens	d. _____
Retina	e. _____

Caring for Your Eyes

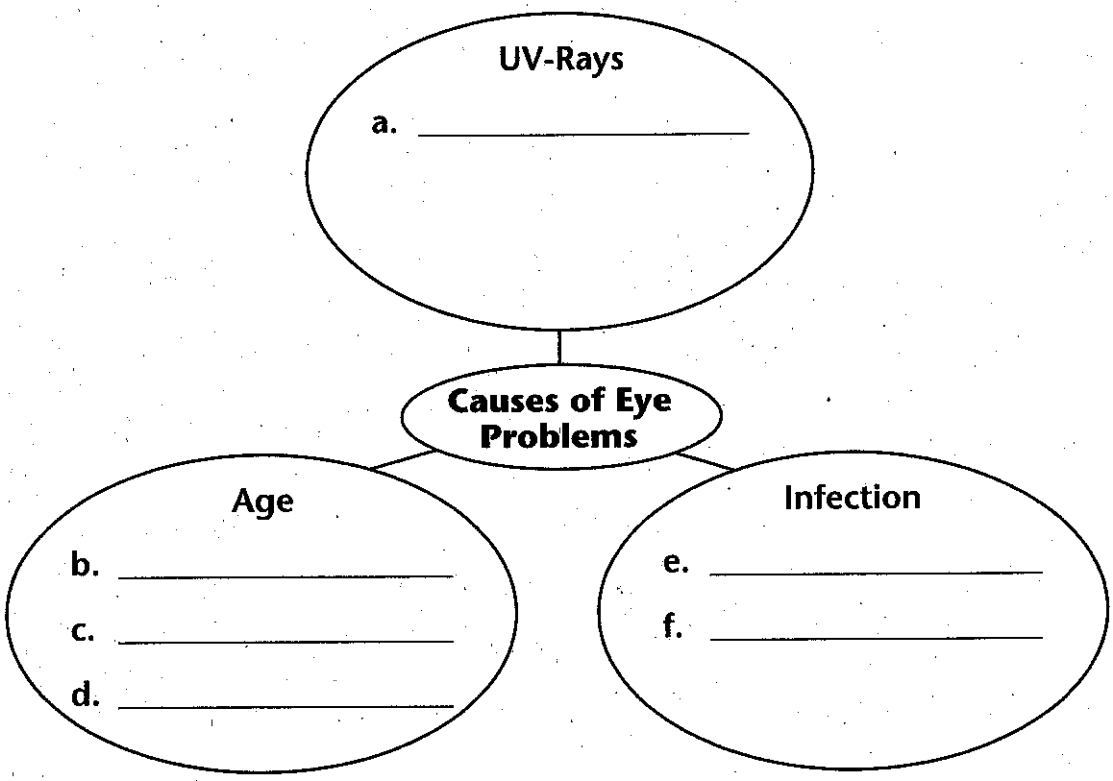
2. Complete the graphic organizer by identifying the cause and effect of each vision problem.

Vision Problem	Cause	Effect
Nearsightedness	a. _____	b. _____
Farsightedness	c. _____	d. _____
Astigmatism	e. _____	f. _____

Name _____ Class _____ Date _____

Section 14-3: **Note Taking Guide** *(continued)*

3. Complete the concept map with causes of eye problems.



4. List two eye care tips you can follow to reduce eyestrain.

   a. _____

   b. _____

5. How can you help protect your eyes from the sun?

   _____

Name _____ Class _____ Date _____

Section 14-3: **Note Taking Guide** *(continued)*

Your Ears

6. Complete the flowchart with details about how sound waves travel through the ear.

Outer Ear

a. _____

_____

↓

Middle Ear

b. _____

_____

↓

Inner Ear

c. _____

_____

↓

Brain

d. _____

_____

Caring for Your Ears

7. List two things you can do to care for your ears.

a. _____

b. _____

NOUN + DE + NOUN

Write the English translation for each of the following

juego de té _____

jugo de naranja _____

libro de poesía _____

lirio del valle _____

lista de bodas _____

mapa de la ciudad _____

mermelada de ciruela _____

nombre de pluma _____

número de teléfono _____

pan de trigo _____

pasta de dientes _____

pastel de manzana _____

programación de computadora _____

rabo de buey _____

reciclaje de periódicos _____

regalo de cumpleaños _____

saco de dormir _____

sala de clase _____

sección de no fumar _____

silla de ruedas _____

sopa de fideos _____

taza de café _____

tortilla de patatas _____

trozo de pastel _____

vaso de agua _____

vendedor de pollo _____

zapatos de tacón alto _____

Segment 1 Lesson 1 Driving is your responsibility and it is a Privilege

- *Before getting behind the wheel, you should know that driving is not a constitutional right it's a privilege. It is easy to lose your privilege if you don't follow rules. To earn your license you must pass a series of tests both written and behind the wheel and obey the law. Driving privileges depend on your age and status including your knowledge and ability to safely operate a motor vehicle.*
- *Your local Department of Highway Safety and Motor Vehicles office will assess your abilities as a driver before issuing you a license. All Florida residents must have a driver's license to operate a vehicle on a public highway or in a parking facility. It is important to take the privilege of driving seriously. It is your responsibility to know all driving laws and any changes to the law that may be enacted. Laws are always changing and drivers have to change with these laws.*
- *When you are issued your driver's license, you are also issued a number of responsibilities. You must continually demonstrate your ability to drive safely on roads. When you fail to do so you may be issued traffic tickets. If your tickets start to add up your license could be suspended or revoked. Getting your license suspended or revoked will require you to go through a series of hoops to get it back. You don't want that.*
- *You must drive safely, obey traffic laws, and respect the rights of other drivers. Concentrating on your own driving is important but be aware of other vehicles around you. Passengers in your car and other drivers on the road expect you to drive safely.*
- *Remember that you are not just driving your car you are driving everyone's car on the road so be able to anticipate all the actions around you.*
- *Always remember you are never alone on the road. Other drivers and pedestrians are always present. Even if you don't see anyone else on the road they are still there. You must respect their rights and be courteous at all times. You earned a license because you have developed the knowledge and skills to interact lawfully and safely with others in any road situation. You are responsible for giving proper signals when you are planning to change lanes, stop, or turn. Signaling is very easy to do but yet some drivers still don't do it. Taking care of your car so that it is always in good working condition is another way of being courteous on the road.*
- *You should also be aware that if you are a minor your parents are responsible for the financial consequences of any property damage, injuries, or deaths you cause while driving. Your parents literally pay for your mistakes so you have a special responsibility to drive safely for them. It's fun to have passengers in your car but they can also be a distraction for new drivers. Always remember that your passengers put their safety in your hands. You must be able to set rules for passengers such as keep phones away and keep the radio volume minimal. There are many distractions besides other passengers you will encounter while driving but keep your attention where it belongs which is on the road.*

Segment 1 Lesson 1 Questions

1. *Before getting behind the wheel you should know that driving is a ?*

2. *Who will assess your ability to drive?*

3. *It is your responsibility to know what?*

4. *What are you issued after you are issued your driver's license?*

5. *You must continually demonstrate what?*

6. *If you don't drive the open roads safely what will happen to you?*

7. *What must you do on the road?*

8. *Concentrating on your own driving is great but what else must you do?*

9. *Who expects you to drive safely?*

10. *Whose car are you driving?*

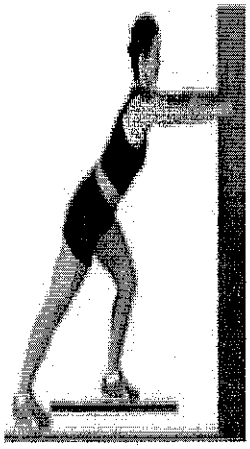
11. *Who is present with you on the road?*

12. *You earned your license because you?*

13. *What are you responsible for?*

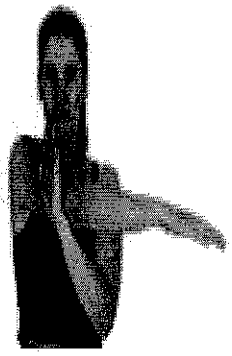
14. *Take care of your car so that it is always what?*

Examples of Static Stretching

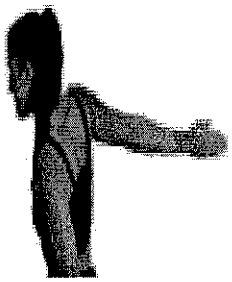


Calves

Hamstring

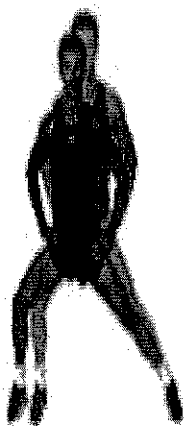


Trapezius

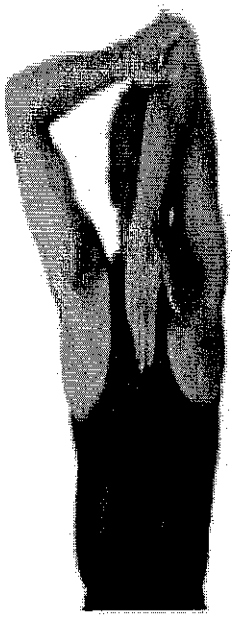


Biceps

Quadriceps



groin



Triceps