Webster County Schools

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7th Grade

Packet 7

7th Grade Comprehension Passage V

Excerpt From *The Great Whale of Kansas*

by Richard W. Jennings

Breaking Ground

1 My story begins where a sadder story might end—with the digging of a hole.

2 It was my eleventh birthday, and, as is the case with all my birthday celebrations, it was also Groundhog Day, an occasion that honors a creature with whom I have more than a holiday in common. The groundhog, or woodchuck, is a solitary animal who spends much of his time either digging a hole or basking in the sunshine by the hole he has dug.

3 That's me.

4 I believe there is nothing, absolutely nothing, half so much worth doing as simply digging a hole. A hole is an achievement. A great hole is a great achievement.

5 I was going to dig a great hole.

6 My parents had given me a pond-building kit for my birthday. They ordered it from a catalog filled with color photographs of water gardens on great European estates.

7 "It's a complete pond in a single, compact box," they explained, using the exact words printed in the catalog. "It has everything you need." And except for the tools, rocks, plants, fish, accessories, electrical power to the site, and the hole itself, it did. What I found in the box was a small underwater pump, a coil of plastic tubing, and a sheet of thick, black plastic as big as my patio. There was also an instructional videotape in two languages.

8 Never have I enjoyed a movie so much.

Source: EngageNY 2017 7th Grade ELA Released Items

9 I watched that video over and over again, waiting for the weather to warm up enough to break ground. Every night before going to sleep, I'd put it on and listen to the soothing voice of the narrator describe the "calm, tranquillity, and serenity of a private water garden." In English, and again in French, he spoke of "dreaming dreams" and "soothing the soul." Step by fascinating step, he explained how to create "an escape, a hidden world all your own."

10 I couldn't wait to get started.

11 Hour after hour, I assembled and disassembled the pump. I spread the liner across the living room carpet and walked around the edges, imagining that the plastic was water. Using colored pencils and graph paper from school, I drew page after page of miniature ponds with microscopic waterfalls.

12 When winter at last retreated, I took spray paint to the brittle brown grass of my backyard, a flat, vacant half-acre that sweeps like a savanna to the scrublike grove of spiked, gnarled hedgeapple trees just this side of Brewster Higley Memorial Park. Like a vandal or graffiti artist, I drew overlapping kidney shapes and ovals in intense neon colors until I'd outlined my pond exactly the way I wanted it to be.

13 From a nearby construction site, I gathered stones for the pond's edge, scores of limestone blocks, their uniformity demonstrating the maximum weight an eager boy can carry.

14 Finally, one morning it was time to dig.

15 I approached the task like a starving man at a banquet. This was the day I had trained for! Armed with a brand-new forged-steel shovel—a birthday gift from my aunt Nan—I ripped into the earth with tireless fury, flinging dirt right and left.

16 As the sun rose in the sky, perspiration fell from my face. The hole grew like a living thing.

17 By noon, I had created a depression in the earth that looked like the point of impact of a meteorite. The bowl-shaped hole was roughly four feet in diameter, with gently sloping sides nearly two feet deep.

18 At this rate, I figured, I'll be basking in tranquillity in no time at all.

19 But don't count your water gardens until the hole is dug. Few things happen the way you think they will.

20 A sudden thunderstorm interrupted my work. Boiling across the flat Kansas prairie, it sneaked up on me, announcing its arrival with a deafening crash.

21 *Kaboom!*

22 I knew better than to stay outside with a metal object in my hand when there was lightning in the air. I quickly abandoned the job site.

23 From the safety of my house, I watched the darkened skies release their pent-up power directly over my backyard. My heart quickened as sheets of rain overflowed the hole, turning my modest work in progress into a scale model of what I hoped it would become—the loveliest body of water in all of Melville.

24 Melville, Kansas.

25 If America were a dart board and your dart landed on Melville, you'd be the winner, 60 hands down. That's because Melville is smack dab in the middle of the United States, exactly halfway between the great Atlantic and Pacific Oceans, a place with no coastline, no beach, and no blue ocean views.

26 It wasn't always like this. In prehistoric times, the spot where Melville sits was submerged beneath a vast inland sea. But over the course of a couple of hundred million 65 years or so, things have a way of changing. Today, luckless Melville is as dry as a bone— the most landlocked city in America.

27 Clearly, it's a place that could use a few improvements.

28 The largest body of water in modern Melville is a man-made pond in Higley Park, the state-owned recreation area that borders my backyard. Rectangular in shape, and held within its banks by enormous, quarried limestone rocks, Higley Pond was dug by bulldozers more than fifty years ago as part of a Kansas flood-control plan.

29 My pond, as I imagined it, although not as big as Higley Pond, would be far more attractive than that aging, government-designed lagoon.

30 The spring rains that had diverted me from my mission eventually ended, and the sun returned. With my nose pressed against the breakfast room windows, I found myself gazing not at the sparkling natural beauty of an elegant water garden, but at a waterlogged trap of sticky mud.

31 Reality.

32 I hate how it keeps getting in the way of my dreams.

1. Read these sentences from paragraph 7.

"It has everything you need." And except for the tools, rocks, plants, fish, accessories, electrical power to the site, and the hole itself, it did.

Why does the author most likely include this description of the pond-building kit?

A to maintain a humorous tone

B to introduce the main conflict

C to express the narrator's disappointment

D to demonstrate the parents' support of their son

2. Read this sentence from line Paragraph 15.

I approached the task like a starving man at a banquet.

What is the main purpose of the comparison in this sentence?

A to describe the narrator's lack of attention to detail

B to emphasize the depth of the narrator's enthusiasm

C to show that the narrator feels weak from excitement

D to show that the narrator is overcome by the job at hand

Source: EngageNY 2017 7th Grade ELA Released Items

3. Read this line from paragraph 18.

At this rate, I figured, I'll be basking in tranquility in no time at all.

What meaning does the phrase "basking in tranquility" convey to the reader?

A The narrator expects positive recognition around town for his efforts.

B The narrator believes the vision of peaceful relaxation shown in the video. C The narrator is unaccustomed to such difficult work and will soon need a rest.

D The narrator is comparing himself to a groundhog that is sitting in the sunshine.

4. Which paragraph best reveals an overall theme of the story?

A Paragraph 11

B Paragraph 15

C Paragraph 19

D Paragraph 26

5. In lines Paragraphs 26-28, how does the narrator's description of the location and history of 33 Melville, Kansas, contribute to the plot?

A It demonstrates that the new pond is better than other ponds.

B It reveals the foolishness of the narrator's attempt to create a new pond.

C It emphasizes the importance of the new pond to the narrator.

D It explains the town's need for a new pond.

6. Which lines from the story reveal a change in the narrator's point of view?

A Paragraphs 20-22

B Paragraph 23

C Paragraph 25

D Paragraph 30

7. How does the narrator's reaction to his pond first filling with water differ from his outlook at the end of the story?

A He is excited at first but then becomes disappointed.

B He is worried at first but then feels satisfied.

C He is scared at first and later becomes angry.

D He is happy at first and later feels proud.

KEY: 7th Grade Comprehension Passage V

Excerpt From ***The Great Whale of Kansas***

by Richard W. Jennings

	Item Type	Correct Answer		Standard
1	Multiple Choice	A	1	CCSS.ELA-Literacy. RL 7.4
2	Multiple Choice	B	1	CCSS.ELA-Literacy. L 7.5
3	Multiple Choice	B	1	CCSS.ELA-Literacy. RL 7.4
4	Multiple Choice	C	1	CCSS.ELA-Literacy.L RL 7.2
5	Multiple Choice	C	1	CCSS.ELA-Literacy. RL 7.3
6	Multiple Choice	D	1	CCSS.ELA-Literacy. RL 7.6
7	Multiple Choice	A	1	CCSS.ELA-Literacy RL 7.3

Source: EngageNY 2017 7th Grade Released Items

7th Grade Comprehension Passage VII

"The Glorious Whitewasher" from ***the Adventures of Tom Sawyer*** by Mark Twain

(1) But Tom's energy did not last. He began to think of the fun he had planned for this day, and his sorrows multiplied. Soon the free boys would come tripping along on all sorts of delicious expeditions, and they would make a world of fun of him for having to work—the very thought of it burnt him like fire. He got out his worldly wealth and examined it—bits of toys, marbles, and trash; enough to buy an exchange of WORK, maybe, but not half enough to buy so much as half an hour of pure freedom. So he returned his straitened means to his pocket, and gave up the idea of trying to buy the boys. At this dark and hopeless moment an inspiration burst upon him! Nothing less than a great, magnificent inspiration.

(2) He took up his brush and went tranquilly to work. Ben Rogers hove in sight presently—the very boy, of all boys, whose ridicule he had been dreading. Ben's gait was the hop-skip-and-jump—proof enough that his heart was light and his anticipations high. He was eating an apple, and giving a long, melodious whoop, at intervals, followed by a deep-toned ding-dong-dong, ding-dong-dong, for he was personating a steamboat. As he drew near, he slackened speed, took the middle of the street, leaned far over to starboard and rounded to ponderously and with laborious pomp and circumstance—for he was personating the Big Missouri, and considered himself to be drawing nine feet of water. He was boat and captain and engine- bells combined, so he had to imagine himself standing on his own hurricane-deck giving the orders and executing them:

(3) "Stop her, sir! Ting-a-ling-ling!" The headway ran almost out, and he drew up slowly toward the sidewalk. "Ship up to back! Ting-a-ling-ling!" His arms straightened and stiffened down his sides.

(4) "Set her back on the stabboard! Ting-a-ling-ling! Chow! ch-chow-wow! Chow!" His right hand, meantime, describing stately circles—for it was representing a forty-foot wheel.

(5) "Let her go back on the labboard! Ting-a-lingling! Chow-ch-chow-chow!" The left hand began to describe circles. "Stop the stabboard! Ting-a-ling-ling! Stop the labboard! Come ahead on the stabboard! Stop her! Let your outside turn over slow! Ting-a-ling-ling! Chow-ow-ow! Get out that head-line! LIVELY now! Come—out with your spring-line—what're you about there! Take a turn round that stump with the bight of it! Stand by that stage, now—let her go! Done with the engines, sir! Ting-a-ling-ling! SH'T! S'H'T! SH'T!" (trying the gauge-cocks)."

(6) Tom went on whitewashing—paid no attention to the steamboat. Ben stared a moment and then said: "Hi- YI! YOU'RE up a stump, ain't you!"

(7) No answer. Tom surveyed his last touch with the eye of an artist, then he gave his brush another gentle sweep and surveyed the result, as before. Ben ranged up alongside of him. Tom's mouth watered for the apple, but he stuck to his work.

(8) Ben said: "Hello, old chap, you got to work, hey?"

(9) Tom wheeled suddenly and said: "Why, it's you, Ben! I warn't noticing."

(10) "Say—I'm going in a-swimming, I am. Don't you wish you could? But of course you'd druther WORK— wouldn't you? Course you would!"

(11) Tom contemplated the boy a bit, and said: "What do you call work?"

(12) "Why, ain't THAT work?"

(13) Tom resumed his whitewashing, and answered carelessly: "Well, maybe it is, and maybe it ain't. All I know, is it suits Tom Sawyer."

(14) "Oh come, now, you don't mean to let on that you LIKE it?"

(15) The brush continued to move.

(16) "Like it? Well, I don't see why I oughtn't to like it. Does a boy get a chance to whitewash a fence every day?" That put the thing in a new light. Ben stopped nibbling his apple. Tom swept his brush daintily back and forth—stepped back to note the effect—added a touch here and there—criticized the effect again— Ben watching every move and getting more and more interested, more and more absorbed. Presently he said:

(17) "Say, Tom, let ME whitewash a little."

(18) Tom considered, was about to consent; but he altered his mind:

(19) "No—no—I reckon it wouldn't hardly do, Ben. You see, Aunt Polly's awful particular about this fence— right here on the street, you know—but if it was the back fence I wouldn't mind and SHE wouldn't. Yes, she's awful particular about this fence; it's got to be done very careful; I reckon there ain't one boy in a thousand, maybe two thousand, that can do it the way it's got to be done."

(20) "No—is that so? Oh come now—lemme just try. Only just a little—I'd let YOU, if you was me, Tom."

(21) "Ben, I'd like to, honest injun; but Aunt Polly—well, Jim wanted to do it, but she wouldn't let him; Sid wanted to do it, and she wouldn't let Sid. Now don't you see how I'm fixed? If you was to tackle this fence and anything was to happen to it—"

(22) "Oh, shucks, I'll be just as careful. Now lemme try. Say—I'll give you the core of my apple."

(23) "Well, here—No, Ben, now don't. I'm afeard—"

(24) "I'll give you ALL of it!"

(25) Tom gave up the brush with reluctance in his face, but alacrity in his heart. And while the late steamer Big Missouri worked and sweated in the sun, the retired artist sat on a barrel in the shade close by, dangled his legs, munched his apple, and planned the slaughter of more innocents. There was no lack of material; boys happened along every little while; they came to jeer, but remained to whitewash. By the time Ben was fagged out, Tom had traded the next chance to Billy Fisher for a kite, in good repair; and when he played out, Johnny Miller bought in for a dead rat and a string to swing it with—and so on, and so on, hour after hour. And when the middle of the afternoon came, from being a poor poverty-stricken boy in the morning, Tom was literally rolling in wealth. He had, besides the things before mentioned, twelve marbles, part of a jew's-harp, a piece of blue bottle-glass to look through, a spool cannon, a key that wouldn't unlock anything, a fragment of chalk, a glass stopper of a decanter, a tin soldier, a couple of tadpoles, six fire- crackers, a kitten with only one eye, a brass doorknob, a dog-collar—but no dog—the handle of a knife, four pieces of orange-peel, and a dilapidated old window sash.

(26) He had had a nice, good, idle time all the while—plenty of company—and the fence had three coats of whitewash on it! If he hadn't run out of whitewash he would have bankrupted every boy in the village.

(27) Tom said to himself that it was not such a hollow world, after all. He had discovered a great law of human action, without knowing it—namely, that in order to make a man or a boy covet a thing, it is only necessary to make the thing difficult to attain. If he had been a great and wise philosopher, like the writer of this book, he would now have comprehended that Work consists of whatever a body is OBLIGED to do, and that Play consists of whatever a body is not obliged to do. And this would help him to understand why constructing artificial flowers or performing on a tread-mill is work, while rolling ten-pins or climbing Mont Blanc is only amusement. There are wealthy gentlemen in England who drive four-horse passenger-coaches twenty or thirty miles on a daily line, in the summer, because the privilege costs them considerable money; but if they were offered wages for the service, that would turn it into work and then they would resign.

(28) The boy mused awhile over the substantial change which had taken place in his worldly circumstances, and then wended toward headquarters to report.

1. Tom's "great, magnificent inspiration" in paragraph 1 is important to developing the plot of the story. What is Tom's inspiration?

   A. He develops a plan for tricking the other boys into doing most of his work.

   B. He decides to bribe the boys with his "worldly wealth" in order to get the boys to paint the fence.

   C. He thinks of ways to make himself enjoy the task of painting the fence.

   D. He focuses on the exciting things around him to distract himself from his work.

   E. He asks his friends to help him so they can all go swimming together.

2. In "Whitewashing the Fence," the author writes Tom and Ben's dialogue using dialect, a special variety of language that includes misspelling and informal words, to

   A. build suspense about what will happen next.

   B. help establish the rural nature of the setting.

   C. establish a conflict between Tom and Ben.

   D. help characterize Tom and Ben as ignorant.

   E. make a point about human nature.

3. In paragraph 1, the author uses phrases like "free boys," "delicious expeditions," and "pure freedom" to suggest that

A. Tom resents his aunt for making him work.

B. Tom believes he should not be made to do chores.

C. Tom is tired from working so hard on the fence.

D. Tom highly values time spent having fun.

E. Tom thinks the task of painting the fence is enjoyable.

4. The following question has two parts. Answer Part A and then answer Part B.

Part A: How do paragraphs 2 through 6, in which Ben pretends to be a steamboat, contribute to the development of the passage?

A. They emphasize the many distractions Tom faces.

B. They hint at Tom's plan for getting his work done.

C. They highlight the friendship between Tom and Ben.

D. They foreshadow the fact Ben will soon be working.

E. They characterize Ben as someone who likes to show off.

Part B: What event in the passage results from the answer to Part A?

A. Tom focuses on painting the fence instead of choosing to play.

B. Tom tells his friend why he likes whitewashing.

C. Tom tricks Ben into choosing to whitewash the fence instead of playing.

D. Tom gets many boys to paint the fence.

5. The following question has two parts. Answer Part A and then answer Part B.

Part A: Which two statements best express the reasons for Tom's success in getting the other boys to do his work for him?

A. Tom has the ability to keep his true feelings hidden.

B. Tom is popular with others and a natural leader.

C. Tom accepts that some situations are beyond his control.

D. Tom dislikes thinking people will make fun of him.

E. Tom understands how to make people feel envious.

F. Tom values objects that other people might view as junk.

Part B: Which excerpt from the passage provides the best evidence for the answers to Part A?

A. Soon the free boys would come tripping along on all sorts of delicious expeditions, and they would make a world of fun of him for having to work—the very thought of it burnt him like fire.

B. He got out his worldly wealth and examined it—bits of toys, marbles, and trash; enough to buy an exchange of WORK, maybe, but not half enough to buy so much as half an hour of pure freedom.

C. "Like it? Well, I don't see why I oughtn't to like it. Does a boy get a chance to whitewash a fence every day?" That put the thing in a new light.

D. And when the middle of the afternoon came, from being a poor poverty-stricken boy in the morning, Tom was literally rolling in wealth.

Source: AchievetheCore.org, 7th Grade Practice Testlets

E. He had discovered a great law of human action, without knowing it—namely, that in order to make a man or a boy covet a thing, it is only necessary to make the thing difficult to attain.

7. The following question has two parts. Answer Part A and then answer Part B.

Part A: Which statement best expresses the main theme of "Whitewashing the Fence"?

A. Friends make sacrifices to help each other.

B. People often value things that seem hard to get.

C. Work can be enjoyable if one has the right attitude.

D. Time is more precious than money or material goods.

Part B: Which lines from the passage does the author provide to best illustrate this theme?

A. Tom surveyed his last touch with the eye of an artist, then he gave his brush another gentle sweep and surveyed the result, as before.

B. "Say—I'm going in a-swimming, I am. Don't you wish you could? But of course you'd druther WORK—wouldn't you? Course you would!"

C. He had discovered a great law of human action, without knowing it—namely, that in order to make a man or a boy covet a thing, it is only necessary to make the thing difficult to attain.

D. He had besides the things before mentioned, twelve marbles, part of a jew's-harp, a piece of blue bottle-glass to look through, a spool cannon, a key that wouldn't unlock anything, a fragment of chalk, a glass stopper of a decanter, a tin soldier, a couple of tadpoles, six fire-crackers, a kitten with only one eye, a brass doorknob, a dog-collar—but no dog—the handle of a knife, four pieces of orange-peel, and a dilapidated old window sash.

KEY: 7th Grade Comprehension Passage VII

"The Glorious Whitewasher" from ***the Adventures of Tom Sawyer*** by Mark Twain

	Item Type	Correct Answer		Standard
1	Multiple Choice	A	1	CCSS.ELA-Literacy. RL 7.3
2	Multiple Choice	B	1	CCSS.ELA-Literacy. RL 7.3
3	Multiple Choice	D	1	CCSS.ELA-Literacy. RL 7.4
4	Part A/Part B	Part A: E Part B: C	1	CCSS.ELA-Literacy.L RL 7.5
5	Part A/Part B	Part A: A,E Part B: C	1	CCSS.ELA-Literacy. RL 7.3
6	Part A/Part B	Part A: B Part B: C	1	CCSS.ELA-Literacy. RL 7.2

Source: AchievetheCore.org, 7th Grade Practice ELA Testlets

7th Grade Comprehension Passage VIII

From the Wave

By Thom Gunn

It mounts at sea, a concave wall
Down-ribbed with shine,
And pushes forward, building tall
Its steep incline.

Then from their hiding rise to sight
Black shapes on boards
Bearing before the fringe of white
It mottles towards.

Their pale feet curled, they poise their weight
With a learn'd skill.
It is the wave they imitate
Keeps them so still.

The marbling bodies have become
Half wave, half men,
Grafted it seems by feet of foam
Some seconds, then,

Source: AchievetheCore.org, 7th Grade ELA Practice Testlets

Late as they can, they slice the face

In timed procession:

Balance is triumph in this place,

Triumph possession.

The mindless heave of which they rode

A fluid shelf

Breaks as they leave it, falls and, slowed,

Loses itself.

Clear, the sheathed bodies slick as seals

Loosen and tingle;

And by the board the bare foot feels

The suck of shingle.

They paddle in the shallows still;

Two splash each other;

They all swim out to wait until

The right waves gather.

1. The following item has two parts. First answer Part A and then answer Part B.

Part A: In line 9, what is the meaning of the word "poise"?

A. to pause before moving

B. to lift carefully

C. to hover above

D. to distribute evenly

Part B: Which TWO lines from the poem best help the reader understand the meaning of "poise"?

A. "Then from their hiding rise to sight"

B. "Their pale feel curl"

C. "Keeps them so still"

D. "Half wave, half men,"

E. "Balance is triumph in this place"

F. "The mindless heave of which they rode"

2. Which lines from the poem best illustrate the theme of this poem?

A. "It mounts at sea, a concave wall Down-ribbed with shine,"

B. "Then from their hiding rise to sight Black shapes on boards"

C. "The marbling bodies have become Half wave, half men,"

D. "They paddle in the shallows still; Two splash each other;"

3. How does Gunn's use of rhyme impact the poem?

A. The rhyming scheme is used to illustrate the natural elegance of the waves.

B. The rhyming scheme is used to show that waves are isolated events.

C. The single syllable rhyming words to signify that waves are simplistic.

D. The alternating rhyming lines mirror the action of waves.

4 In what way does Gunn use poetic form to contribute to the meaning of the poem?

A. He strategically places descriptive words within each stanza to emphasize the power of the waves.

B. He sequences the stanzas to match the increasing and decreasing intensity of the wave.

C. He uses precise action verbs to show that waves follow a cycle that began long ago.

D. He alternates between describing the waves and describing the surfers to show that they are competing.

5. Which sentence explains how the setting impacts the surfers?

A. As the waves ebb and flow, the surfers must adjust to remain part of the action.

B. The movement of the waves makes the surfers to return to the beach.

C. The changes in the waves forces the surfers to stop enjoying the ride and hold on to survive.

D. As the waves become stronger, the surfers enjoy surfing more.

7. The following item has two parts. Answer Part A and then answer Part B.

Part A: Which statement most accurately captures the central idea of the poem?

A. Surfing is both a challenging and dangerous activity.

B. Surfing is a way to learn more about cycles in the natural world.

C. Surfers must connect with the motion of the waves to be successful.

D. Surfers must practice extensively to be able to master the activity.

Part B: Which line from the poem best supports the correct answer to Part A?

A. "Late as they can, they slice the face"

Source: AchievetheCore.org, 7th Grade ELA Practice Testlets

B. "It is the wave they imitate"

C. "A fluid shelf"

D. "They all swim out to wait until"

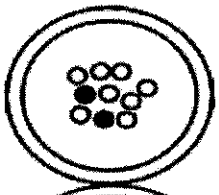
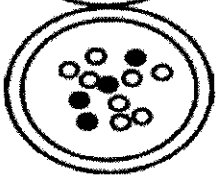
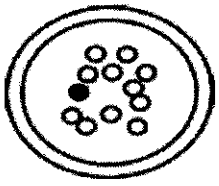
KEY: 7th Grade Comprehension Passage VIII

From the Wave

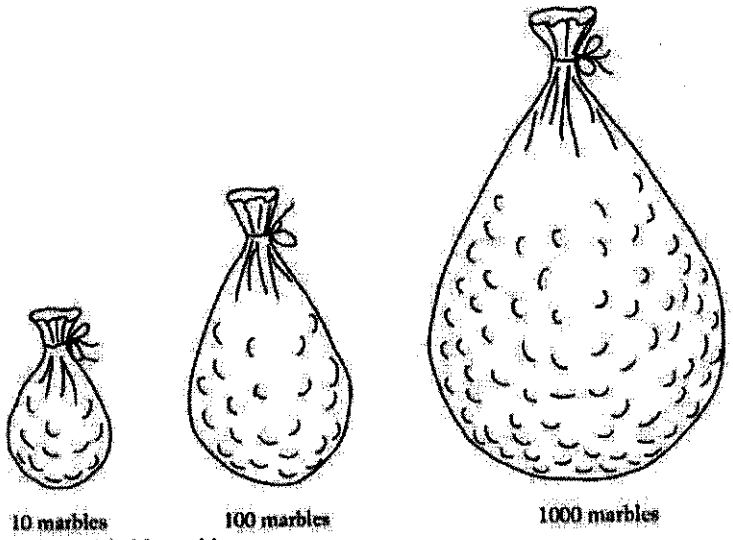
By Thom Gunn

	Item Type	Correct Answer		Standard
1	Part A/Part B	Part A: D Part B: C, E	1	CCSS.ELA-Literacy. RL 7.4
2	Multiple Choice	C	1	CCSS.ELA-Literacy. RL 7.2
3	Multiple Choice	D	1	CCSS.ELA-Literacy. RL 7.4
4	Multiple Choice	B	1	CCSS.ELA-Literacy.L RL 7.5
5	Multiple Choice	A	1	CCSS.ELA-Literacy. RL 7.3
6	Part A/Part B	Part A: C Part B: B	1	CCSS.ELA-Literacy. RL 7.2

Source: AchievetheCore.org, 7th Grade ELA Practice Testlets

	MAFS.7.SP.3.5-FSA Practice	**Neutral-Questions for this standard may or may not allow the use of a calculator.**
	In each scenario for Questions 1-3, a probability is given. Describe each event as likely, unlikely, or neither likely nor unlikely. Explain your choice of description.	
1.	The probability of a hurricane being within 100 miles of a location in two days is 40%.	
2.	The probability of a thunderstorm being located within 5 miles of your house sometime tomorrow is $\frac{9}{10}$.	
3.	The probability of a given baseball player getting at least three hits in the game today is 0.08.	
4.	**A person is going to pick one marble without looking. For which dish is there the greatest probability of picking a black marble?** A.  B.  C.  D. 	

5. **There is only one red marble in each of the bags shown below. Without looking, you are to pick a marble out of one of the bags. Which bag would give you the greatest chance of picking the red marble?**



10 marbles 100 marbles 1000 marbles

A. **Bag with 10 marbles**
B. **Bag with 100 marbles**
C. **Bag with 1000 marbles**
D. **It makes no difference**

	MAFS.7.SP.3.6	**Neutral-Questions for this standard may or may not allow the use of a calculator.**
1.	Reagan will use a random number generator 1,200 times. Each result will be a digit from 1 to 6. Which statement **best** predicts how many times the digit 5 will appear among the 1,200 results? Ⓐ It will appear exactly 200 times. Ⓑ It will appear close to 200 times but probably not exactly 200 times. Ⓒ It will appear exactly 240 times. Ⓓ It will appear close to 240 times but probably not exactly 240 times.	
2.	For the past three months, Sydney recorded the number of eggs that her hen laid each week. The results are as follows: 4, 3, 5, 4, 6, 4, 5, 4, 3, 5, 7, and 6. Approximate the probability that the hen will lay exactly five eggs next week.	
3.	Approximate the probability that the hen will lay four or fewer eggs the next week.	
4.	**A quarter is flipped 50 times. Which of the following is most likely to be the number of times heads comes up?** **A. 2** **B. 3** **C. 11** **D. 26** **E. 50**	

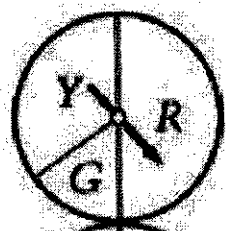
5.

RESULTS

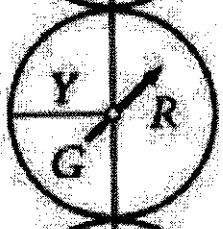
G	157
Y	352
R	491

Jerry spun one of the spinners below 1,000 times and obtained the results shown in the table above. Which spinner did Jerry probably use?

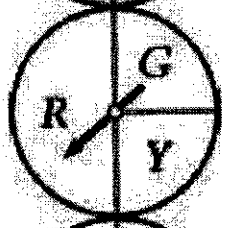
A.



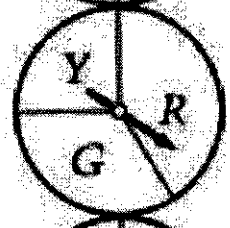
B.



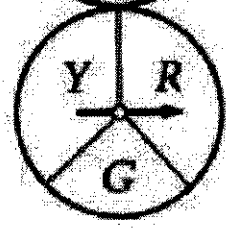
C.



D.



E.



	MAFS.7.SP.3.6-FSA Practice	 **Neutral-Questions for this standard may or may not allow the use of a calculator.**
1.	A bag contains green marbles and purple marbles. If a marble is randomly selected from the bag, the probability that it is green is 0.6 and the probability that it is purple is 0.4. Dylan draws a marble from the bag, notes its color, and returns it to the bag. He does this 50 times. How many times would you expect Dylan to draw a green marble?	
2.	Is it possible for Dylan to draw a green marble exactly five times? Explain your reasoning.	

3. Olivia rolled two number cubes with sides numbered one through six. The sum of the two numbers she rolled was eight, and the probability of getting a sum of eight is $\frac{5}{36}$. The probability of getting other possible sums when two number cubes are rolled is given in the table.

Estimate the number of times that the sum will be 10 if the two number cubes are rolled 600 times. Show work and explain.

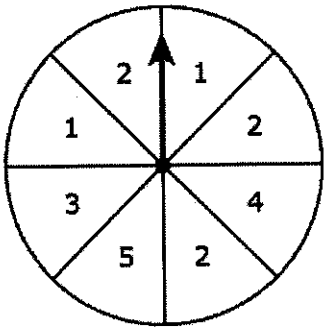
Sum	Probability
2	$\frac{1}{36}$
3	$\frac{1}{18}$
4	$\frac{1}{12}$
5	$\frac{1}{9}$
6	$\frac{5}{36}$
7	$\frac{1}{6}$
8	$\frac{5}{36}$
9	$\frac{1}{9}$
10	$\frac{1}{12}$
11	$\frac{1}{18}$
12	$\frac{1}{36}$

4. If Olivia rolls the number cubes 600 times, do you think she will get exactly the number you calculated? Why or why not?

MAFS.7.SP.3.7

A CALCULATOR IS ALLOWED

1. The spinner face shown is divided into 8 equal sections.



The arrow on this spinner is spun once.

What is the probability that the arrow will land on a section labeled with a number **greater** than 3?

Ⓐ $\frac{1}{8}$

Ⓑ $\frac{1}{4}$

Ⓒ $\frac{1}{3}$

Ⓓ $\frac{1}{2}$

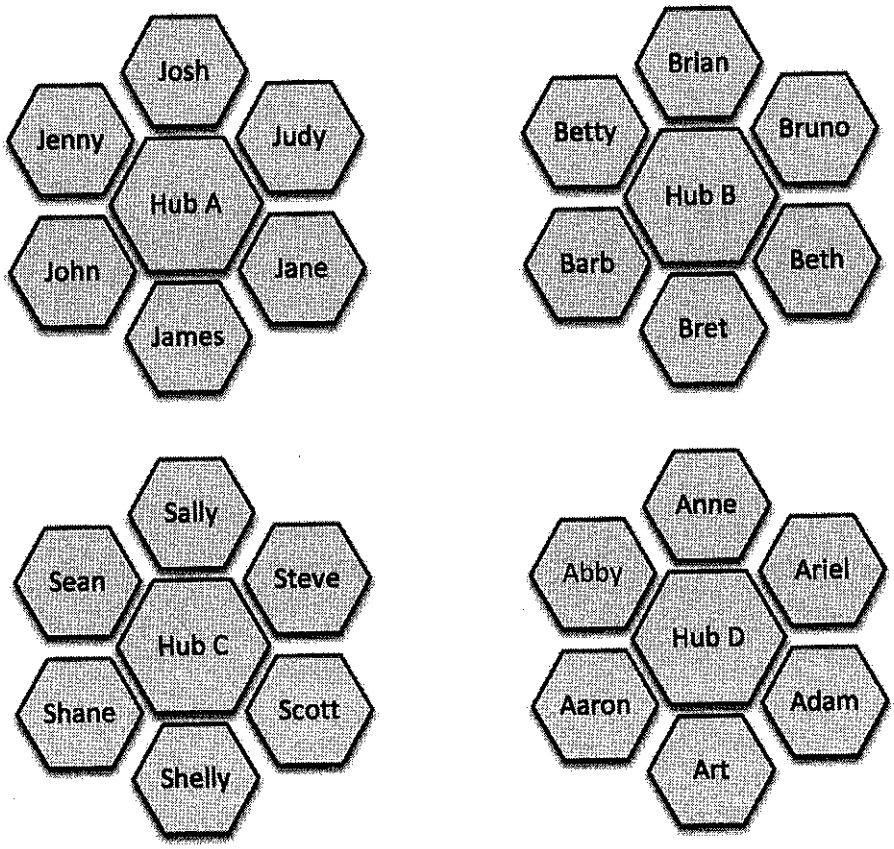
2. Susan put blue tiles, green tiles, and yellow tiles into a bag. All the tiles are the same size and shape. Susan will select one tile from the bag without looking, record its color, and then put the tile back into the bag. She will repeat this experiment 240 times. Based on the number of tiles of each color in the bag, Susan predicted the results shown in the frequency table below.

Predicted Results

Color of Tile	Frequency
blue	120
green	40
yellow	

A total of 12 tiles are in the bag.

Based on the table, what is the best prediction for the number of times Susan will select a yellow tile from the bag? Show or explain how you got your answer.

3.	Based on the table, determine the number of blue tiles, the number of green tiles, and the number of yellow tiles that are in Susan's bag. Show or explain how you got **each** of your answers.
4.	Use the seating chart for Mr. Elroy's Computer Science class (shown below) to answer the questions.  Suppose one of the computers was delivered with a defective monitor. What is the probability that Sally was assigned that computer with the defective monitor?

7th Grade

MAAP Tested Domains

Performance Tasks

State-Tested Performance Task Standard

Task #1: Cereal

Here is some information from the side of the two boxes of cereal:

Tasty Oats
12 grams of protein in 100 grams of cereal

Cornbits
5 grams of protein in 45 grams of cereal

1. How many grams of Tasty Oats cereal will give you 9 grams of protein? Show your work. _____ grams

2. Which cereal, Tasty Oats or Cornbits, has the higher ratio of protein? _____

   Explain how you figure it out.

   _____
   _____
   _____
   _____

State-Tested Performance Task Standard

Task #2: What's the Catch?

Your parents have agreed to let you get a cell phone, finally! The catch is you have to research the plans available and decide which one would give you the best value.

Phone Co.	Monthly	Cost/# of Messages
Snappy & Co.	$0	$0.25/message
Venti Mobile	$20	$0.15/message
Cheshire Wireless	$0	$0.50/2 messages
Ritzy Cellular	$30	$0.10/message

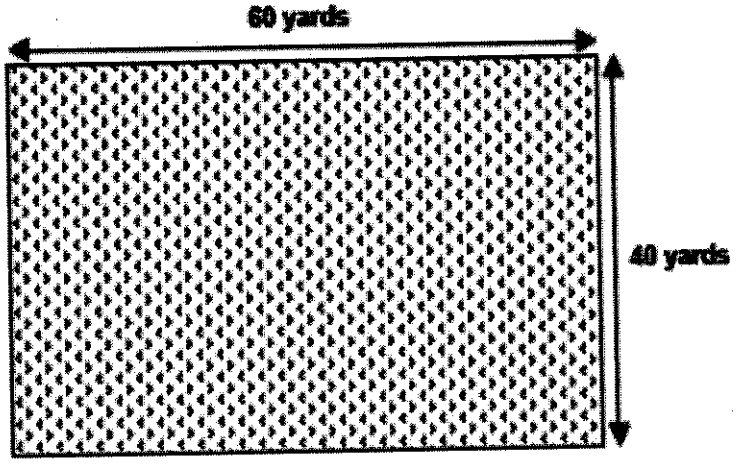
1. Which plan would fit your needs best if you send between 0 and 100 messages each month?

2. Which plan would fit your needs if you send over 200 messages each month?

3. Make three observations about the plans, using math vocabulary, graphs, or tables.

State-Tested Performance Task Standard

Task #3: Lawn Mowing



Dan and Alan take turns cutting the grass. Their lawn is 60 yards long and 40 yards wide.

1. What is the area of the yard? _____

   Dan takes an hour to cut the lawn using an old mower.

2. How many square yards does Dan cut in a minute? Show your work.

Alan only takes 40 minutes using a new mower.

3. How many square yards does Alan cut in a minute? Show your calculation.

4. One day they both cut the grass together. How long do they take? How did you figure it out?

State-Tested Performance Task Standard

Task #4: Cat Food

Carol has two cats, Rover and Bobo.

1. Rover eats $\frac{3}{4}$ of a can of cat food each day and Bobo eats $\frac{1}{2}$ of a can of cat food each day. Cat food costs $5.00 for three cans. It is only sold in 3 can packs. How much does it cost Carol for a 60-day supply of cat food for her two cats? Show your work.

2. Find the cost of cat food for a 29-day supply, a 30-day supply, and a 31-day supply. Show your work.

   29-day supply: _____

   30-day supply: _____

   31-day supply: _____

State-Tested Performance Task Standard

Task #5: Mixing Paints

Wayne is mixing paint. He makes six quarts of brown paint by mixing equal quantities of yellow paint and violet paint. The violet paint is made from one-third red paint and two-thirds blue paint.

1. How much red paint does he use?

2. How much blue paint does he use?

3. What percentage of the brown paint is made from the blue paint? Explain.

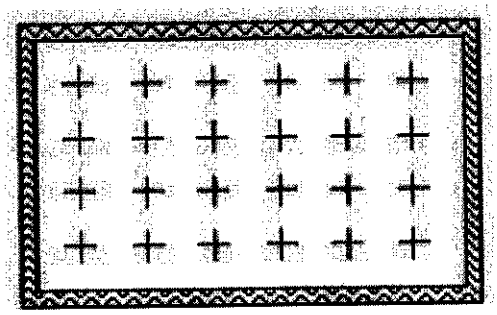
State-Tested Performance Task Standard

Task #6: Linflower Seeds

Tim grows linflowers from seeds. But not all of his seeds start to grow. He has found that for every 100 seeds he sows, only about 75 start to grow.

1. Tim sows 20 linflower seeds. How many would you expect to grow? Explain your reasoning.

2. Tim sows 24 seeds in a box. Each mark on the box below shows the position of a seed.



Guess which of the seeds start to grow. Draw circles around the seeds that do *not* start to grow. (Note: There is more than one correct way to show your answer to this question.)

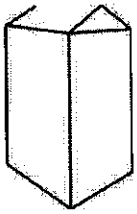
Explain your reasoning.

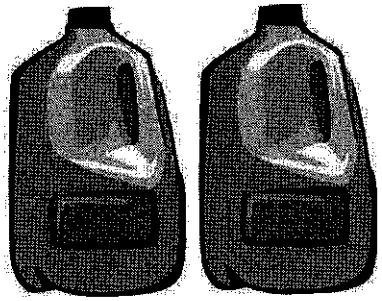
State-Tested Performance Task Standard

Task #7: Miguel's Milkshakes

Miguel plans to make milkshakes for a party. The grocery store only sells four sizes of milk at the following prices:

$\frac{1}{4} gallon = \$1.80$ $\frac{1}{2} gallon = \$2.10$ $1\ gallon = \$4.25$ $2\ gallons = \$5.98$



1. Describe the better buy if you plan to buy lots of milk. Support your answer with tables, graphs, equations, diagrams, and/or verbal descriptions.

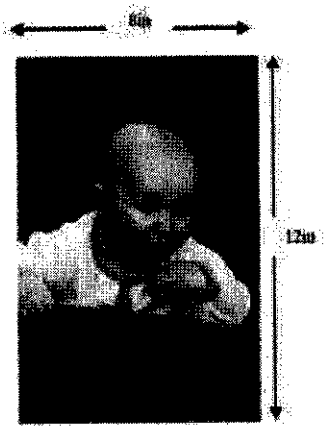
2. Suppose Miguel needed 3 gallons of milk. If he wants to spend the least amount of money, using any combination of the four sizes above, how much will he spend? Prove that your method guarantees Miguel will spend the least amount of money.

State-Tested Performance Task Standard

Task #8: Photos

The *aspect ratio* of a photograph is the ratio of the photograph's width to its height.

1. Which of the ratios listed below correctly represents the aspect ratio of this 8-inch wide by 12-inch high baby photo? Circle each correct ratio.



8:12	12: 8	4:6	2:3
3:2	1:1.5	16:24	24:36

2. Choose one of the ratios that you circled and explain why it is correct.

3. Choose a ratio that you did not circle and explain why it is incorrect.

Task #1: Cereal—KEY

How many grams of Tasty Oats cereal will give you 9 grams of protein? Show your work. 75 grams

$100 \times \frac{3}{4}$

Which cereal, Tasty Oats or Cornbits, has the higher ratio of protein?

Ratio of protein in Tasty Oats = $\frac{12}{100} = 0.12$

and

Ratio of protein in Cornbits = $\frac{5}{45} = 0.111$

Task #2: What's the Catch?—KEY

Which plan would fit your needs best if you send between 0 and 100 messages each month?

Students may make a table showing the calculated monthly costs for different numbers of messages on different plans. They should notice that the values for the Snappy and Cheshire companies are the same when the customer sends 100 or fewer messages.

Which plan would fit your needs if you send over 200 messages each month?

From a table, calculating the per month cost for different numbers of messages on different plans, students should notice that Snappy and Cheshire become more expensive than the other two companies when the customer sends 200 or more messages.

Make three observations about the plans, using math vocabulary, graphs, or tables.

Answers will vary, but some examples might include: vocabulary like *proportionality*. From a graph, since Snappy and Cheshire go through the origin, they represent proportional relationships, since the rate for each message would be the same regardless of how many messages were sent. Venti and Ritzy, however, are not proportional since they do not pass through the origin.

Task #3: Lawn Mowing—KEY

What is the area of the yard? 2400 square yards

Dan takes an hour to cut the lawn using an old mower.

How many square yards does Dan cut in a minute? Show your work.

$$(60\ x\ 40) \div 60 = 40\ square\ yards\ per\ minute$$

Alan only takes 40 minutes using a new mower.

How many square yards does Alan cut in a minute? Show your calculation.

$$(60\ x\ 40) \div 40 = 60\ square\ yards\ per\ minute$$

One day they both cut the grass together. How long do they take? How did you figure it out?

In one minute, together they mow $40 + 60 = 100\ square\ yards$: $(60\ x\ 40) \div 100 = \mathbf{24\ minutes}$

Task #4: Cat Food—KEY

Carol has two cats, Rover and Bobo.

Rover eats $\frac{3}{4}$ of a can of cat food each day and Bobo eats $\frac{1}{2}$ of a can of cat food each day. Cat food costs $5.00 for three cans. It is only sold in 3 can packs. How much does it cost Carol for a 60-day supply of cat food for her two cats? Show your work. **$125**

Number of cans = $60 \; x \; 1.25 = 75$

Cost in dollars= $75 \div 3 \; = \; \$25$

Find the cost of cat food for a 29-day supply, a 30-day supply, and a 31-day supply. Show your work.

29-day supply: **$65**

number of cans = 29 29 x 1.25 = 36.25 (round to 39) cost in =39÷3=$13 13x5=65

30-day supply: **$65**

number of cans = 30 30 x 1.25 = 37.5 (round to 39) cost in =39 ÷3=$13 13x5=65

31-day supply: **$65**

number of cans = 31 31 x 1.25 = 38.75 (round to 39) cost in =39÷3=$13 13x5=65

Comments that all these answers are the same because the number of cans needs to be rounded to a number that can be divided by 3.

Task #5: Mixing Paints—KEY

Wayne is mixing paint. He makes six quarts of brown paint by mixing equal quantities of yellow paint and violet paint. The violet paint is made from one-third red paint and two-thirds blue paint.

How much red paint does he use? **Red = 1 quart**

How much blue paint does he use? **Blue = 2 quarts**

What percentage of the brown paint is made from the blue paint? Explain.
33%. He uses three quarts each of yellow and violet. In 3 quarts of violet there is one quart of read and 2 quarts of blue. The percent of blue $\frac{2}{6}\ x\ 100 = 33.3\%$

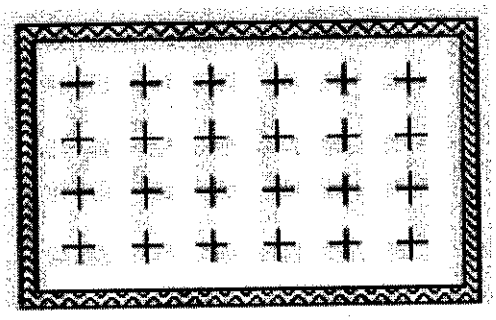
Task #6: Linflower Seeds—KEY

Tim grows linflowers from seeds. But not all of his seeds start to grow. He has found that for every 100 seeds he sows, only about 75 start to grow.

Tim sows 20 linflower seeds. How many would you expect to grow? Explain your reasoning.

75 out of 100 is 75 percent. Therefore, 100 x 0.75 **OR** $\frac{75}{100} = \frac{3}{4}$ so 20 x 0.75=**15**

Tim sows 24 seeds in a box. Each mark on the box below shows the position of a seed.



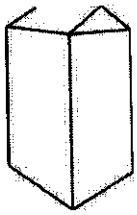
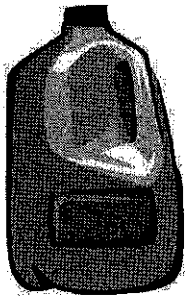
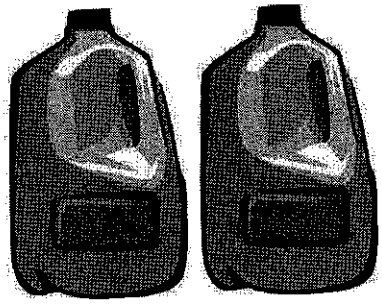
Guess which of the seeds start to grow. Draw circles around the seeds that do not start to grow. (Note: There is more than one correct way to show your answer to this question.)

Explain your reasoning. Student circles 6 marks. The student should explain that 25% or $\frac{1}{4}$ will not grow. Thus, $\frac{1}{4}\ of\ 24 = 6$.

Task #7: Miguel's Milkshakes—KEY

Miguel plans to make milkshakes for a party. The grocery store only sells four sizes of milk at the following prices:

$\frac{1}{4}gallon = \$1.80$ $\frac{1}{2}gallon = \$2.10$ $1\ gallon = \$4.25$ $2\ gallons = \$5.98$

Describe the better buy if you plan to buy 2 or more gallons of milk. Support your answer with tables, graphs, equations, diagrams, and/or verbal descriptions.

Student response should identify that the 2 gallons of milk for $5.98 is the best buy. For example, comparing each case for at least two gallons, students would have the following:

¼ gallon of milk $7.20 ($1.80 x 4)
½ gallon of milk $4.20 ($2.10 x 2)
1 gallon of milk $4.25 ($4.25 x 1)
2 gallons of milk $2.99 ($5.98 ÷ 2)

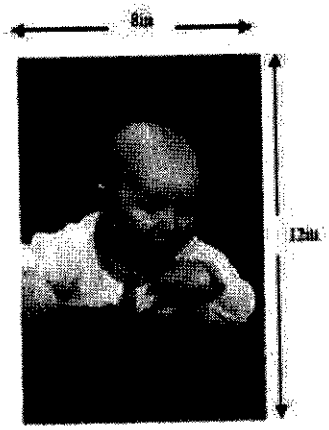
Suppose Miguel needed 3 gallons of milk. If he wants to spend the least amount of money, using any combination of the four sizes above, how much will he spend? Prove that your method guarantees Miguel will spend the least amount of money.

Student gives correct answer: The least amount of money Miguel will spend for 3 gallons of milk is $10.18. Students should justify their response by stating that the quantities with the lowest unit rates will produce the least expensive purchase.

Task #8: Photos—KEY

The *aspect ratio* of a photograph is the ratio of the photograph's width to its height.

1. Which of the ratios listed below correctly represents the aspect ratio of this 8-inch wide by 12-inch high baby photo? Circle each correct ratio.



8:12	12: 8	4:6	2:3
3:2	1:1.5	16:24	24:36

2. Choose one of the ratios that you circled and explain why it is correct.
   See student's response as it relates to equivalent ratios.

3. Choose a ratio that you did not circle and explain why it is incorrect.
   See student's response. Any ratio not selected can be viewed as one that is not an equivalent ratio.

7th Grade MAFS Spiral Review Packet-Answer Key

	MAFS.7.EE.1.1-FSA Practice
1.	**D**
2.	**Equivalent: A, C, D** **Explanations:** ☑ **A. Yes, because adding zero does not change the value of the expression. (Associative and Inverse Properties of Addition)** ☐ B. No, because -1.8 was only factored out of the first term. (Distributive Property) ☑ **C. Yes, because multiplying the original expression by one does not change the value. (Commutative, Inverse and Identity Properties of Multiplication)** ☑ **D. Yes, because adding zero does not change the original expression. (Zero Property of Multiplication)** ☐ E. No, because -1 was only factored out of the first term. (Distributive Property)
3.	**12x -74**
4.	**Yes**
5.	$\frac{1}{7}x + 12$ *This question is a possible sample of an equation editor response technology-enhanced item.*

	MAFS.7.EE.1.2
1.	**A, B, E** *This question is a possible sample of a multi-select response technology-enhanced item.*
2.	**The student explains that the first expression represents the total cost of ice cream sold including the price and quantity of each item sold.**
3.	**When comparing the two versions of the expression, the student may explain that the first expression shows the product of each item's cost and quantity sold. In the second expression, items that sold the same quantity are combined so there are fewer terms.**
4.	**Since the expression shows the sum of the two widths (x) and two lengths ($3x + 2$), the expression represents the perimeter of the rectangle.** *This question is a possible sample of an open response technology-enhanced item.*
5.	**The two expressions are equivalent.** **By using the Commutative and Associative Properties of Addition,** **$x + (3x+2) + x + (3x+2) = (x + 3x + x + 3x) + (2+2) = 8x + 4$.** *This question is a possible sample of an open response technology-enhanced item.*
6.	**Abbey's expression shows that an alternative way to find the perimeter is to multiply the width by 8 and add 4 since $8x + 4$ is equivalent to $x + (3x+2) + x + (3x+2)$.** *This question is a possible sample of an open response technology-enhanced item.*

	MAFS.7.EE.1.2-FSA Practice
1.	**B:** $9(n-8)=9n-72$ **Others:** $9n-8$
2.	**When you simplify both expressions by applying the Distributive Property, you get the equivalent expression, 5y-10.** *This question is a possible sample of an open response technology-enhanced item.*
3.	Here are some possible expressions: **14–2x** **2(7–x)** **14–x–x** **10–2x+4** **–2x+14** *This question is a possible sample of an equation editor response technology-enhanced item.*
4.	**In the expression 14–2x, the 14 represents the number of tickets Malia started with since the value of the expression is 14 when x = 0. The –2 represents the number of tickets she spends per ride. 2x represents the number of tickets she has to subtract from her initial amount after riding x rides.** *This question is a possible sample of an open response technology-enhanced item.*
5.	**In the expression 2(7–x), the 7 represents the total number of rides Malia can go on. (7–x) represents the number of rides she has left and the 2 represents the number of tickets required for each ride Malia has left.** *This question is a possible sample of an open response technology-enhanced item.*
6.	**A, B, & C:** $6a+4b+2$ **D:** $6a+4b+3$ *This question is a possible sample of a multi-select response technology-enhanced item.*

7th Grade MAFS Spiral Review Packet-Answer Key

	MAFS.7.EE.2.3
1.	Part A: **$4905** Part B: **5929** *This question is a possible sample of an equation editor response technology-enhanced item.*
2.	Part A: **2.5 miles** Part B: **40 minutes**
3.	Part A: **B** Part B: **C**
4.	**The student indicates that it is reasonable to say that Alexa has about $5000 in her account. The student offers an explanation such as,** **"I estimated by rounding each amount in the problem and then mentally calculating $4300 + ($900 – $300) = $4300 + $600 = $4900 which is about $5000."** *This question is a possible sample of an open response technology-enhanced item.*
5.	**$2.96**

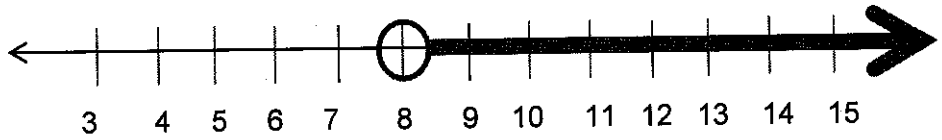
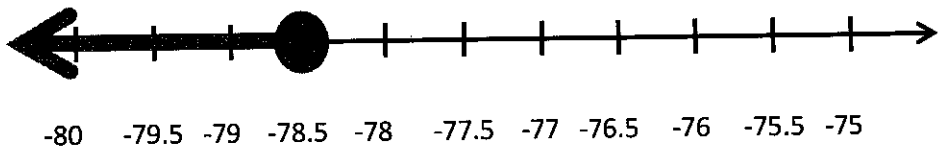
<table>
<tr><td></td><td>MAFS.7.EE.2.3-FSA Practice</td></tr>
<tr><td>1.</td><td>The student correctly calculates the new production rate (640 reels per day) and determines that the company will not be able to meet an order of 20,000 reels in April since it can only produce 19,200 reels in 30 days.

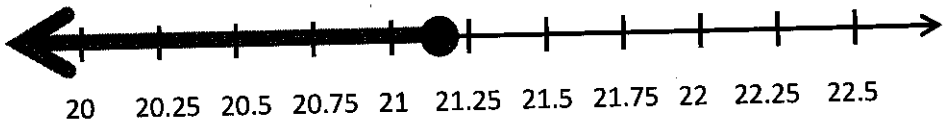
This question is a possible sample of an open response technology-enhanced item.</td></tr>
<tr><td>2.</td><td>The student determines that it will take 31.25 or 32 days to meet the order.

This question is a possible sample of an equation editor response technology-enhanced item.</td></tr>
<tr><td>3.</td><td>The student determines that Brittany did not figure out the bill correctly. The student determines the correct bill to be $48.45. The student calculates:

• 1.065[$53.52(0.85)]=$48.45,
• $53.52 (0.85) = x, then 1.065x = $48.45, or
• $53.52- $53.52(0.15) = x, then x + 0.065x = $48.45.

The student calculates the discounted price of the meal ($45.49) and determines that Brittany should not get a price lower than that after adding tax and, therefore, concludes that Brittany is wrong.</td></tr>
<tr><td>4.</td><td>Jordan: $200 – ($40 savings) = $160.
Then, $160 – ($100 headphones + $40 two shirts + $5 tax) is $15,
which is about $10.</td></tr>
<tr><td>5.</td><td>
<table>
<tr><th>Ingredients</th><th>Batch 1</th><th>Batch 2</th><th>Batch 3</th></tr>
<tr><td>Salt (cups)</td><td>1</td><td>2</td><td>4</td></tr>
<tr><td>Pepper (cups)</td><td>$\frac{1}{2}$</td><td>1</td><td>2</td></tr>
<tr><td>Garlic powder (cups)</td><td>$\frac{1}{4}$</td><td>$\frac{1}{2}$</td><td>1</td></tr>
<tr><td>Onion powder (cups)</td><td>$\frac{1}{4}$</td><td>$\frac{1}{2}$</td><td>1</td></tr>
</table>
</td></tr>
</table>

	MAFS.7.EE.2.4
1.	**C, D** *This question is a possible sample of a multi-select response technology-enhanced item.* MAFS.7.EE.2.4a
2.	**B** MAFS.7.EE.2.4a
3.	**$7** MAFS.7.EE.2.4a
4.	A. **The student writes the inequality as $200 - 15d < 80$.** *This question is a possible sample of equation editor response technology-enhanced item.* B. $d > 8$ C. **The student explains that more than eight days have passed.**  *This question is a possible sample of a graphic response technology-enhanced item.* MAFS.7.EE.2.4b
5.	A. **The student writes the inequality, $\frac{9}{5}C + 32 \leq -109.3$.** *This question is a possible sample of equation editor response technology-enhanced item.* B. $C \leq -78$ C. **Scales the number line appropriately, and graphs the solutions using a closed dot at -78.5 and shading to the left.**  *This question is a possible sample of a graphic response technology-enhanced item.* MAFS.7.EE.2.4b

	MAFS.7.EE.2.4-FSA Practice
1.	**35 minutes** MAFS.7.EE.2.4a
2.	**$2.25** MAFS.7.EE.2.4a
3.	A. **C, D** B. **x = 14** MAFS.7.EE.2.4a
4.	A. **The solution is $x \leq 21.22...$ or $21.22... \geq x$.** B. **The student explains that Aaron can buy no more than 21 songs (or "21 or fewer").** **The student may clarify that Aaron can buy between zero and 21 songs after buying the game for $3.99.** **The student may add clarifying comments such as:** • **It has to be greater than zero because you can't buy negative songs.** • **It would have to be whole numbers, because you can't buy parts of songs.**  *This question is a possible sample of a graphic response technology-enhanced item.* MAFS.7.EE.2.4b
5.	A. $3w + 15 \geq 50$ *This question is a possible sample of an equation editor response technology-enhanced item.* B. $w \geq 11\frac{2}{3}$ C. **Since we cannot (or should not) wash just $\frac{2}{3}$ of a window, it makes sense that we round this number up to 12.** **Thus, Jonathan must wash at least 12 windows in order to purchase the sports set.** **Note that this is just the minimum number he must wash, and washing more would be in his benefit, as he can purchase more sports accessories.** *This question is a possible sample of an open response technology-enhanced item.*

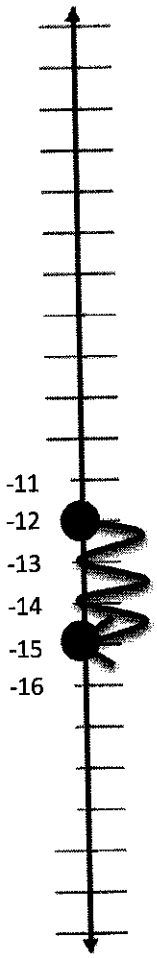
D. **Using this information, and the fact that only whole numbers make sense in this context, our solution set can be graphed as follows:**

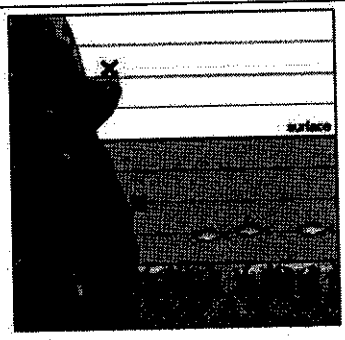
This question is a possible sample of a graphic response technology-enhanced item.

There are other possible graphs, as the right hand endpoint can be determined based on a discussion based on what would be "realistic" based on, for example, how many neighbors Jonathan has, how many windows are in each house, and how much time he has to wash windows.

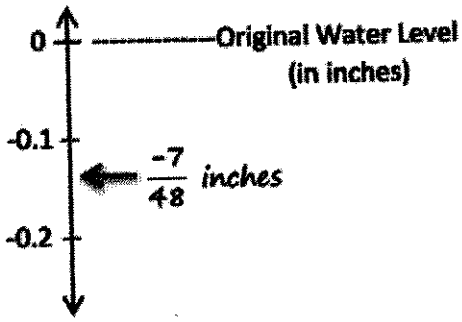
The point of the question is to have students realize that a context limits the solution set even when other numbers satisfies the accompanying inequality.

MAFS.7.EE.2.4b

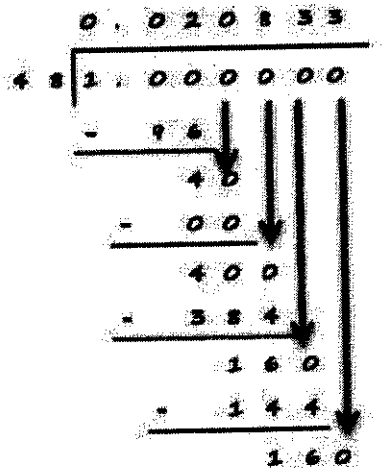
	MAFS.7.NS.1.1
1.	**B** MAFS.7.NS.1.1a
2.	**Least Value:** $n - p$ **Greatest Value:** $p - n$ *This question is a possible sample of an editing task choice technology-enhanced item.* MAFS.7.NS.1b, c
3.	**The student describes the second dive as -15 feet.** **The student explains that -12 feet represents the first dive and 3 feet deeper would mean moving down three more feet, ending up at a depth of 15 feet or -15 feet.** MAFS.7.NS.1c  *This question is a possible sample of a graphic response technology-enhanced item.*
4.	**B, D, F** *This question is a possible sample of a multi-select response technology-enhanced item.* MAFS.7.NS.1.1d

	MAFS.7.NS.1.1-FSA Practice
1.	 Part A: **Some students put the X just above or just below the (-10) line, which is acceptable. The placement of the X is flexible so long as the X clearly indicates the (-10) line.** **It should not be floating between lines or so large that it may indicate another line.** Part B: **-50** Part C: **20 feet** MAFS.7.NS.1.1b Part D: **0. Above the surface is positive and below the surface is negative, so the surface must be 0.** *This question is a possible sample of an open response technology-enhanced item.* MAFS.7.NS.1.1a
2.	A. **Points F and H - Since Point F = -6 and Point H = 6, then -6 + 6 = 0.** *This question is a possible sample of an open response technology-enhanced item.* MAFS.7.NS.1.1a **B. The equation E – I represents the distance between the points E and I.** $d = \lvert -9 - 8 \rvert$ *This question is a possible sample of an equation editor response technology-enhanced item.* MAFS.7.NS.1.1c

	C. **The distance between Point E and Point I is 17 units.** **Point E = -9 and Point I = -9,** **then:** $d = \lvert -9 - 8 \rvert$ $d = \lvert -9 + (-8) \rvert$ $d = \lvert -17 \rvert$ $d = 17$ *This question is a possible sample of an open response technology-enhanced item.* MAFS.7.NS.1.1c D. **The value of Ethan's expression is 8.** $\lvert -2 \rvert + \lvert 6 \rvert = 2 + 6 = 8$ **Since Point G is -2, the distance -2 is from 0 is its absolute value which is 2. Since Point H is 6, the distance 6 is from 0 is its absolute value which is 6.** **If you add their absolute values together, then you will have the distance the two numbers are from each other.** *This question is a possible sample of an open response technology-enhanced item.* MAFS.7.NS.1.1b
3.	**B and D** *This question is a possible sample of a multi-select response technology-enhanced item.* MAFS.7.NS.1.1c
4.	**2 and** $\frac{-3}{4}$ *This question is a possible sample of an editing task choice technology-enhanced item.* MAFS.7.NS.1.1d

	MAFS.7.NS.1.2
1.	**A, C, D** *This question is a possible sample of a multi-select response technology-enhanced item.* MAFS.7.NS.1.2a
2.	**C** MAFS.7.NS.1.2b
3.	**A, D, E, F** *This question is a possible sample of a multi-select response technology-enhanced item.* MAFS.7.NS.1.2c
4.	A. $0.8\overline{3}$ B. **0** C. $\frac{5}{6}$ **and** $\frac{0}{17}$ **are rational numbers because they are fractions of integers without a zero denominator or because their decimal representations either terminate or repeat.** *This question is a possible sample of an open response technology-enhanced item.* MAFS.7.NS.1.2d
5.	A. $-\frac{7}{48}$  *This question is a possible sample of a graphic response technology-enhanced item.* MAFS.7.NS.1.2a B. **The water level drops** $1\frac{1}{48}$ **inches over a 7 year period.** MAFS.7.NS.1.2a

C.



$-1\frac{1}{48}$ written in decimal form is a repeating decimal because when converted using long division, the remainder repeaters after the hundred-thousandths place.

MAFS.7.NS.1.2d

MAFS.7.NS.1.2-FSA Practice

1.

The student explains the result in terms of repeated addition,

(e.g., the student says that $2 \times \left(-\frac{4}{5}\right) = -\frac{4}{5} + \left(-\frac{4}{5}\right) = -\frac{8}{5}$).

The student uses the Additive Inverse and Distributive Properties to solve the problem. The student explains that $2\left(-\frac{4}{5} + \frac{4}{5}\right)$ should equal zero since $-\frac{4}{5}$ *and* $\frac{4}{5}$ are opposites and since $2 \times 0 = 0$.

Use of the Distributive Property shows that

$$2\left(-\frac{4}{5} + \frac{4}{5}\right) = 2\left(-\frac{4}{5}\right) + 2\left(\frac{4}{5}\right) = 2\left(-\frac{4}{5}\right) + \frac{8}{5}.$$

In order for this to equal zero, $2\left(-\frac{4}{5}\right)$ should be the opposite of $\frac{8}{5}$.

Therefore, $2\left(-\frac{4}{5}\right)$ must equal $-\frac{8}{5}$.

This question is a possible sample of an open response technology-enhanced item.

MAFS.7.NS.1.2a

2.

B, D, E

This question is a possible sample of a multi-select response technology-enhanced item.

MAFS.7.NS.1.2b

3.

		Equivalent	Explanation
A.	$\frac{1}{-4}$	☑	**It is equivalent because it also equals $-\frac{1}{4}$ or -0.25; $-5 \div 20$ simplifies to $-\frac{1}{4}$, which can also be written as $\frac{1}{-4}$.**
B.	$-\frac{20}{5}$	☐	It is not equivalent because $-5 \div 20 = -\frac{1}{4}$ but $-\frac{20}{5} = -4$.
C.	-4	☐	It is not equivalent because $-\frac{1}{4}$ does not equal -4.
D.	$-\left(\frac{-5}{-20}\right)$	☑	**It is equivalent because the two negatives in the parentheses make the fraction positive, so the negative on the outside of the parentheses makes the whole expression negative.**
E.	$-\frac{1}{4}$	☑	**It is equivalent because the negative of a fraction can be in the numerator or the denominator or out in front of the whole fraction – those are all equal.**
F.	$\frac{-5}{-20}$	☐	It is not equivalent because $-5 \div 20$ is negative but $\frac{-5}{-20}$ is positive.

This question is a possible sample of a multi-select response technology-enhanced item.

MAFS.7.NS.1.2b

4.	A. The student correctly rewrites $\left(1\frac{1}{3}\cdot 2\frac{1}{2}\right)\cdot 3$ as $\left(1\frac{1}{3}\cdot 3\right)\cdot 2\frac{1}{2}$ and finds the product of $\left(1\frac{1}{3}\cdot 3\right)$ mentally. The student correctly finds the product of 4 and $2\frac{1}{2}$ and indicates a use of the Commutative and Associative Properties to reorder and regroup the factors to get an answer of 10. B. The student rewrites $7\bullet 2\frac{4}{5}+7\bullet 3\frac{1}{5}$ as $7(2\frac{4}{5}+3\frac{1}{5})$ and correctly completes the calculation by mentally adding $2\frac{4}{5}$ and $3\frac{1}{5}$ and then multiplying the sum by 7 getting a final answer of 42. The student indicates having used the Distributive Property. *This question is a possible sample of a matching item technology-enhanced item.* MAFS.7.NS.1.2c
5.	A. **1.625** B. **undefined** C. $\frac{13}{8}$ **is a rational number because it is a fraction of integers without a zero denominator or because its decimal representation terminates.** *This question is a possible sample of an open response technology-enhanced item.* MAFS.7.NS.1.2d

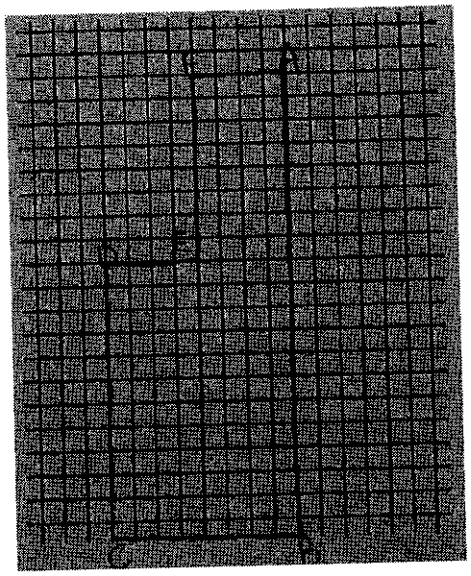
	MAFS.7.NS.1.3
1.	**34.65** *This question is a possible sample of an equation editor response technology-enhanced item.*
2.	**–10 – 6 + 4 ÷ (-0.5)(-2)** **= –10 – 6 + (-8)(-2)** **= –10 – 6 + 16** **= –16 + 16** **= 0**
3.	• **Completing the division problem** $3\frac{4}{5} \div \frac{3}{4} = 5\frac{1}{5}$ **to get five with a remainder of** $\frac{1}{5}$ **of a full bag.** • **Using repeated subtraction of** $\frac{3}{4}$ **from** $3\frac{4}{5}$ **(OR** $\frac{15}{20}$ **from** $\frac{76}{20}$**) to get five with a remainder of** $\frac{1}{20}$ **of a cup.** • **Changing both quantities to decimals and using repeated subtraction of 0.75 from 3.80 to get five with a remainder of 0.05 of a cup.** *This question is a possible sample of an open response technology-enhanced item.*
4.	**Disagree; Selling 8 ornaments covers most of her costs but still leaves her $2 in debt.** **3.50x – 30** **3.50(8) – 30** **(24+4) – 30** **38 – 30** **= -2** *This question is a possible sample of an open response technology-enhanced item.*

7th Grade MAFS Spiral Review Packet-Answer Key

	MAFS.7.NS.1.3-FSA Practice
1.	-54
2.	21.6 The student uses the temperature differences to find the measured temperatures each week (25, 18.4, 22, 23.5, and 19.1) and averages them by finding their sum, 108, and dividing by five to find an average water temperature of 21.6.
3.	On line 4, Travis subtracted $188 from $180 and got a positive answer. The difference should be -$8.00. *This question is a possible sample of an open response technology-enhanced item.*
4.	Starting at Line 3: 180.00 - 188.00 + 20.00 – 5.95 -8.00 + 20.00 – 5.95 12.00-5.95 =6.05 Travis' actual balance should be $6.05. 6.05 + (-20.00) overdraft fee $\|-20.00\| - \|6.05\|$ -13.95 -13.95 + (-7.85) outstanding charge $\|-13.95\| + \|-7.85\|$ -21.85 To get his account back to 0, Travis needs to deposit $21.80 or more to avoid another overdraft fee. *This question is a possible sample of an open response technology-enhanced item.*
5.	So $284.99 should go to Mr. Aceves' class, $174.41 should go to Mrs. Baca's class, and $140.60 should go to Mr. Canyon's class.

7th Grade MAFS Spiral Review Packet-Answer Key

	MAFS.7.G.1.1
1.	**12.5 cm**
2.	**0.8 km**
3.	**780 cm**
4.	**187200 cm^2**
5.	**A. 1 in = 13 ft** **B. 143 ft by 169 ft** **C. 69.04 bags so you would need to buy 70 bags**

	MAFS.7.G.1.1-FSA Practice
1.	**183 m**
2.	$\frac{1in^2}{64\,ft^2}$
3.	**The area ratio is the square of the scale, 1 in : 8 feet.**
4.	 *This question is a possible sample of a graphic-drawing response technology enhanced item.*
5.	**The new drawing is double the length of the original drawing because the scale is half the size.**

<table>
<tr><td></td><td>MAFS.7.G.1.2</td></tr>
<tr><td>1.</td><td>The student is able to draw a triangle with angle measures 110°, 30°, and 40° and says it is possible to draw more than one triangle with these conditions.

This question is a possible sample of a graphic-drawing response technology-enhanced item.</td></tr>
<tr><td>2.</td><td>If the sides are increased proportionally, or by the same factor, the angle measures will not be changed.</td></tr>
<tr><td>3.</td><td>The student is able to draw a triangle with the given angle and included side measures

This question is a possible sample of a graphic-drawing response technology-enhanced item.</td></tr>
<tr><td>4.</td><td>It is not possible to draw more than one triangle with these conditions.
The student explains in terms of:
• The uniqueness of the third side.
• The relationship between the length of a side and the opposite angle measure.</td></tr>
<tr><td>5.</td><td>
<table>
<tr><td>A. 5 cm, 8 cm, 12 cm</td><td>☑</td><td></td><td>When comparing the sum of each pair of sides to the remaining third side, it is always greater.</td></tr>
<tr><td>B. 12 in., 12 in., 12 in.</td><td>☑</td><td></td><td>When comparing the sum of each pair of sides to the remaining third side, it is always greater.</td></tr>
<tr><td>C. 3 ft, 6 ft, 10 ft</td><td></td><td>☑</td><td>The sum of 3 and 6 is not greater than the third side which is 10.</td></tr>
</table>
The length of each side of a triangle must be less than the sum of the lengths of the other two sides.

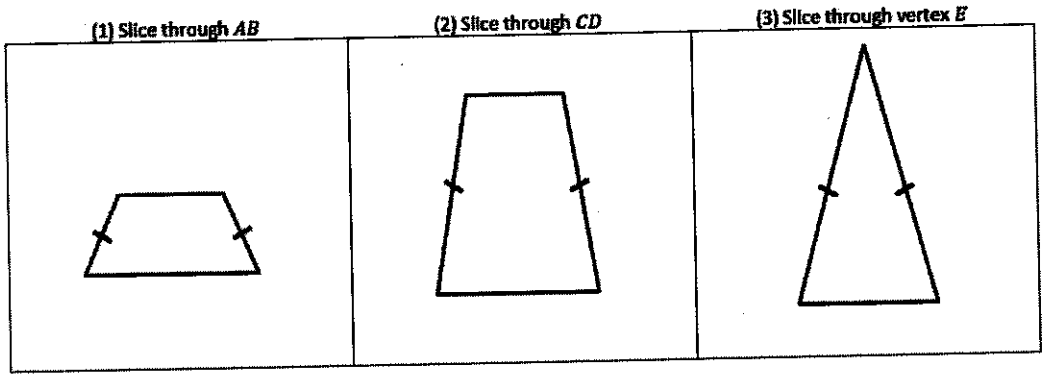
This question is a possible sample of a matching item response technology-enhanced item.</td></tr>
</table>

<table>
<tr><th></th><th>MAFS.7.G.1.2-FSA Practice</th></tr>
<tr><td>1.</td><td>The student is able to draw a triangle with sides of the given lengths.

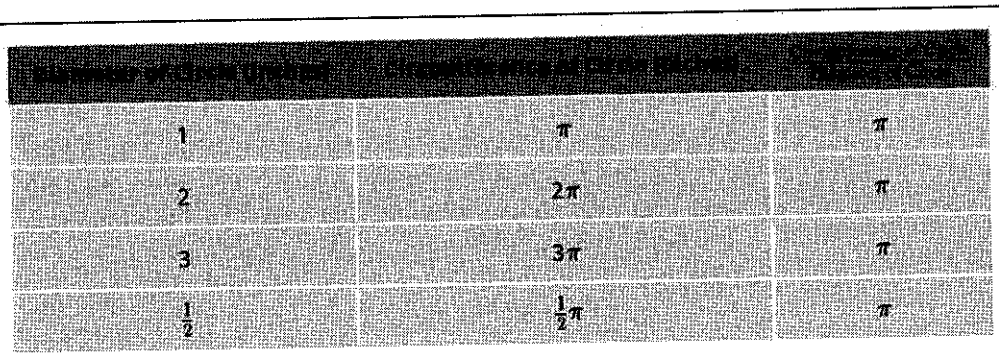
This question is a possible sample of a graphic-drawing response technology-enhanced item.</td></tr>
<tr><td>2.</td><td>It is not possible to draw more than one triangle with these conditions. The student explains in terms of:
• The uniqueness of the third vertex.
• The relationship between the length of a side and the opposite angle measure.</td></tr>
<tr><td>3.</td><td>
<table>
<tr><td>A.</td><td>10, 7, 2 cm</td><td>No, the sum of 7 and 2 is not greater than the third side which is 10.</td></tr>
<tr><td>B.</td><td>3, 4, 5 cm</td><td>Yes, when comparing the sum of each pair of sides to the remaining third side, it is always greater.</td></tr>
<tr><td>C.</td><td>8, 3, 11 cm</td><td>No, the sum of 8 and 3 is equal to the third side, 11 cm, not greater.</td></tr>
</table>
</td></tr>
<tr><td>4.</td><td>16 cm because the sum of 10 and 7 has to be greater than this new third side. The student is able to draw a triangle with sides of the given lengths.

This question is a possible sample of a graphic-drawing response technology-enhanced item.</td></tr>
</table>

	MAFS.7.G.1.3
1.	**B, C, D, E** *This question is a possible sample of a multi-select technology-enhanced item.*
2.	**Vertical Cut = Triangle** **Horizontal Cut = Circle** *This question is a possible sample of an open response technology-enhanced item.*
3.	**The cross section is a rectangle with a length equal to the length of the prism and a width equal to the width of the prism (or the same size as side *AEHD*).** **6 units by 10 units** *This question is a possible sample of a graphic-drawing response technology-enhanced item.*
4.	**The cross section is a circle with a diameter equal to the diameter of the base of the cylinder, 4 units.** *This question is a possible sample of an open response technology-enhanced item.*

	MAFS.7.G.1.3-FSA Practice
1.	
2.	**The cross section is a rectangle with a length equal to the width (or length) of the prism and a width equal to the height of the prism, depending on the direction of the slice (or the same size as side *ABCD* or *CDHG*).** **6 units by 4 units** *This question is a possible sample of a graphic-drawing response technology-enhanced item.*
3.	**The cross section is a rectangle with a length equal to the height of the cylinder and a width equal to the diameter of the base of the cylinder.** **7 units by 4 units** *This question is a possible sample of a graphic-drawing response technology-enhanced item.*
4.	**The cross section is a rectangle with a length equal to the height of the cylinder, 7 units, and a width less than the diameter of the base of the cylinder.**

	MAFS.7.G.2.4
1.	**Part A: C** **Part B: D**
2.	A. **Correctly identifies the formula for circumference of a circle, $C = 2\pi r$ and $C = \pi d$.** *This question is a possible sample of an open response technology-enhanced item.* B. **Explains that C is the circumference, π is the ratio of the circumference to the diameter of a circle and has an approximation of 3.14, d is the diameter, and r is the radius.** C. **Correctly draws and labels the diameter and radius of the circle.**
3.	**376.8 meters**
4.	**314 square yards**
5.	A. **r, The y height of the rectangular shape is equal to the circle's radius.** B. $\frac{1}{2}$ **The base of the shape is equal to half of the circle's circumference.** C. **The student writes the equation** $A = \frac{1}{2}Cr$, **and explains that the equation indicates that the area of a circle is equal to half of the product of the circumference of the circle and its radius.**

	MAFS.7.G.2.4-FSA Practice
1.	225π cm^2
2.	$25\pi/3$ cm^2
3.	 *This question is a possible sample of a table response technology-enhanced item.*
4.	The purple figure is composed of 5 squares each with an area of one unit^2 and four half-circles with a radius of 1 unit. Putting two half circles together creates a whole circle with radius 1 unit which has an area of $\pi \cdot 12$ unit^2. Thus, the area of the purple figure is $5 + 2\pi \approx 11.28$ unit^2. To find the perimeter of the purple figure, note that the boundary is composed of 4 half-circles with a radius of 1 unit and 4 segments of length 1 unit. Two half circles have a total length of $2\pi \cdot 1$ unit so the purple figure has a perimeter of $4 + 4\pi \approx 16.57$ units.

	MAFS.7.G.2.5
1.	A. $x + 53 = 180$; *This question is a possible sample of an equation editor response technology-enhanced item.* B. $x = 127$ so that the $m = 127$ degrees.
2.	A. $x + 53 = 90$; *This question is a possible sample of an equation editor response technology-enhanced item.* B. $x = 37$ so that the measure of the complement of is 37 degrees.
3.	$2x + (x - 3) = 90$; $x = 31$
4.	$m\angle KPN = 2(31)$ or 62°.
5.	The $m\angle NPO = m\angle MPL$ since $\angle NPO$ and $\angle MPL$ are vertical. $m\angle NPO = 31 - 3$ or 28°, therefore $m\angle MPL = 28°$. *This question is a possible sample of an open response technology-enhanced item.*

	MAFS.7.G.2.5-FSA Practice
1.	A. $x + 29.02 = 90$; *This question is a possible sample of an equation editor response technology-enhanced item.* B. $x = 60.98$ so that the measure of angle 1 = 60.98°.
2.	A. $x + 117 = 180$; *This question is a possible sample of an equation editor response technology-enhanced item.* B. $x = 63$ so the $m\angle WXZ = 63°$.
3.	$\frac{2}{3} = \frac{x}{180-x}$; $2x + 3x = 360$ or $x = 72$ so the $m\angle ABD = 72°$.
4.	Part A: $\angle DCE = 63°$ since $\angle BCF$ and $\angle DCE$ are vertical angles, or $x + 117 = 180$, $x = 63$. Part B: $x + 63 = 180$; $x = 117$ so that $m\angle FCE = 117°$.
5.	$\angle DCB$ has the same measure as $\angle FCE$ since these angles are vertical.

	MAFS.7.G.2.6
1.	4 square inches
2.	35 square inches *This question is a possible sample of an equation editor response technology-enhanced item.*
3.	Surface Area = 403.44 cm^2 Volume = 551.37 cm^3
4.	The student successfully decomposes the solid figure into familiar shapes, selects appropriate formulas for calculating area, and accurately calculates the surface area as 760 ft^2. Note: The student may include the floor of the entire structure as part of the exterior surfaces to paint which would involve adding one base equal to 100 ft^2 resulting in a total surface area of 860 ft^2.

	MAFS.7.G.2.6-FSA Practice
1.	**74 square feet**
2.	**The volume of the rectangular prism as 21,000 ft^3, The volume of the triangular prism as 8,400 ft^3, and The volume of the house as 29,400 ft^3.**
3.	**The student successfully decomposes the figure into familiar shapes, selects appropriate formulas for calculating area, and accurately calculates the surface area as 1608 cm^2.**
4.	**540 cm^3** *This question is a possible sample of an equation editor response technology-enhanced item.*

7th Grade MAFS Spiral Review Packet-Answer Key

	MAFS.7.SP.1.1
1.	B
2.	The student suggests a sampling method that is likely to result in a representative sample. For example, the student suggests randomly selecting a large number (n = 2000) of 12-year-old boys from a number of schools throughout the state in a variety of settings (urban, rural, suburban). The student says the average height of these boys is a good estimate of the average height of 12 year old boys in the U.S. *This question is a possible sample of an open response technology-enhanced item.*
3.	The student says that Jeremy's conclusion is not valid and explains: Jeremy's sampling method is biased since he is only surveying students attending a basketball game. Most people attending the game would not go unless they liked basketball. His sample is not representative of the population of seventh graders because people other than seventh graders were surveyed and a large group of seventh graders did not have the opportunity to be a part of the sample. *This question is a possible sample of an open response technology-enhanced item.*
4.	Jeff's survey
5.	Jeff surveyed a larger amount of students than Benita. His survey included a sample of more than half of the homeroom students while Benita only surveyed 4 students.

	MAFS.7.SP.1.1-FSA Practice
1.	C
2.	The student chooses C ("Ask every third student who walks into the school.") as the best sampling method and explains: • It includes students of all grade levels so it will provide the most representative sample of the whole student population, and • All students have an equal chance of being selected to participate in the survey so it is random. The student may further explain reasons why the other choices would not be good survey methods: 1. (A) Asking only students currently buying ice cream creates a bias in favor of the current flavors. There may be students who would buy ice cream but do not because they do not like the current flavors. 2. (B) Asking only seventh graders will not represent students from all grade levels. 3. (D) Asking only student council members will not be random because all students at the school do not have an equal chance of being selected. Also, this sample may be too small. *This question is a possible sample of an open response technology-enhanced item.*
3.	It is unlikely that Mr. Briggs's math class is a representative of all students at the school. For example, Mr. Briggs may be a particularly good (or entertaining) teacher, or he may pass out candy every day, or this class might be an advanced elective. Perhaps the students responded positively in hopes of pleasing their teacher. A better way to gather data would be to take a random sample of 25 students from all students at the school, so that it would be more representative of the population of interest. Among other options, this could be done by assigning a random number to every student from 1 to *N*, where *N* is the number of students at the school. Then a random digits table or a calculator could be used to select 25 random numbers between 1 to *N* for the sample. *This question is a possible sample of an open response technology-enhanced item.*
4.	My sample is more representative because it is more random than my friend who is just surveying students who arrive early to school.

	MAFS.7.SP.1.2
1.	The sample size is 50 students. So if 10 out of 50 students chose horror movies in the sample, then 240 total students from Moorsville MS would prefer horror movies. *This question is a possible sample of an equation editor response technology-enhanced item.*
2.	The student explains that if another random sample of students were drawn, the results would probably be a little different due to sampling variability. *This question is a possible sample of an open response technology-enhanced item.*
3.	A. Since any estimate from 24.6% to 42.6% will be considered a winner, all of the estimates of 25%, 31.25%, and 37.5% would be the "winners." From the table or dot plot, that would be 15 + 22 + 20 respectively, which would make for a total of 57 winning estimates. B. From the table or dot plot, an estimate that is "more than half" would be any estimate of 56.25%, 62.5%, or 68.75%. That would be 4 + 2 + 1 respectively, which would make for a total of 7 estimates which have values that correspond to "more than half red."
4.	In this case, the estimate from any random sample of 16 marbles will always be of the form $\frac{x}{16}$ where x is a discrete value from 0,1,2,...16 . None of those possible proportions can equal exactly 33.6%; the closest possible sample percentage is 31.25% $\left(-\frac{5}{16}\right)$ which happens to be the most frequent estimate in the table. Alternatively, 0.336 x 16 = 5.376 , and it is not possible to draw 5.376 red marbles as the number of reds drawn must be a whole number between 0 and 16 (inclusive).
5.	Under the assumption that the random samples are representative of the population from which they were selected, if half of the marbles in the glass jar were red, then the dot plot and table would most likely show a majority of sample values centered near 50%. We notice from the collected data that most of the sample estimates are in the 25% to 43.75% range, and the graph seems to be centered more in the low-30% values. Other arguments that discuss how the graph is centered at a value far from 50% and/or how a small number of the estimates are actually near 50% would also be appropriate.

	MAFS.7.SP.1.2-FSA Practice
1.	The student calculates the sample proportion, 92 out of 150. Based on the estimate, 1595 students prefer longer school days. *This question is a possible sample of an equation editor response technology-enhanced item.*
2.	The student offers a reasonable suggestion for increasing the confidence in the estimates such as increasing the sample size.
3.	Statement III
4.	Statement I bases the inference on the exact figures calculated from the table. Statement II-No one in the sample has a February birth month. Statement IV is not strongly supported by the data. Statement III is the only statement supported by the data because in the table there are 10 sampled students with birthdays in April compared to the 4 sampled students with birthdays in July. The statement also uses the word "probably" to emphasize that it is based on a sample as opposed to the entire school population.

	MAFS.7.SP.2.3
1.	The median of the 12-17 age group is 20, and the median of the 18-24 age group is 40.
2.	The IQR of each age group is 10.
3.	The difference between the medians is 20, which is two times the IQR.

	MAFS.7.SP.2.3-FSA Practice
1.	Yes, the male hand-spans tend to be larger for males. All but two males are at least 20 cm but less than 50% of the female hands are that large.
2.	Carl
3.	Carl's median = 32 Angela's median = 28 32-28 = 4
4.	Carl's maximum = 62 Angela's maximum = 57 62-57= 5
5.	Carl's range = 62-6 = 56 Angela's range = 57-1 = 56

	MAFS.7.SP.2.4
1.	B
2.	The student compares the two distributions in context by comparing both the medians and a measure of spread such as the IQR. For example, the student writes: • The median height of Type A trees (18) is greater than the median height of Type B trees (16), so, in general, Type A trees are taller than Type B trees. • The interquartile range is the same for both distributions (8), so half of both populations of trees are between 12 and 20 feet in height. • The range of the Type A distribution (14) is greater than the range of the Type B distribution (10), so Type A trees vary in height more than Type B trees.
3.	The student compares the two distributions in context by comparing both their means and their MADs. For example, the student writes: • The mean word length in the tenth grade geometry book (6.5) is greater than the mean word length in the seventh grade book (4.0) so words in the tenth grade book tend to be longer on average. • There is more variation in the length of the words in the tenth grade book (MAD = 2.5) than in the seventh grade book (MAD = 1.4).

	MAFS.7.SP.2.4-FSA Practice
1.	The mean number of hours for students who attend the class in-person is 5.1 hours while the mean number of hours for students how access the class online is 4.6 hours. The median for students who attend class in-person is 5 and the median for students who access is 5. The range for students who attend class in-person is 3 while the range for students who access class online is 6. So, there is more variability in the data for students who access the class online. So, the students who attend class in –person spend more hours than students who access it online if you take the variability of the data into account.
2.	The mean number of callers is 7.5 and the mean number of emailers is 7.1. The median of callers is 7.5 and the median of emailers is 7. The range of callers is 9 and the range of emailers is 4. So, based on center the data is close but the variability for the callers is more spread out than the emailers. So the emailers are more consistently getting between 5 to 9 customers while the callers are more variable, ranging from 3 to 12 new customers.

MAFS.7.SP.3.5

1.

	Probability of an Event?	Yes	No	Explanation
A.	-1		☑	Probability cannot be negative.
B.	4.2		☑	Probability cannot be greater than 1.
C.	0.6	☑		Represents probability because it is between zero and one, inclusive.
D.	0.888	☑		Represents probability because it is between zero and one, inclusive.
E.	0	☑		Represents probability because it is between zero and one, inclusive.
F.	0.39	☑		Represents probability because it is between zero and one, inclusive.
G.	-0.5		☑	Probability cannot be negative.

This question is a possible sample of a matching response technology-enhanced item.

2. **A. "certain" or "for sure will happen"**
B. "very unlikely" or "most likely will not happen"
C. "impossible" or "it cannot happen"
D. "as likely to happen as not happen"
E. "very likely" or "almost for sure will happen"

3. **D**

4. **A, Spinner A has a 3 out of 6 chance of landing on blue while Spinner B has a 1 out of 3 chance of landing on blue.**

5. **D**

	MAFS.7.SP.3.5-FSA Practice
1.	Neither likely nor unlikely since 40% is close to 50%.
2.	Likely, since $\frac{9}{10}$ is close to one.
3.	Unlikely, since .08 is close to zero.
4.	A
5.	A

	MAFS.7.SP.3.6
1.	B
2.	There is a $\frac{3}{12}$ or $\frac{1}{4}$ or 25% chance of the hen laying exactly five eggs next week.
3.	There is a $\frac{6}{12}$ or $\frac{1}{2}$ or 50% chance of the hen laying four or fewer eggs next week.
4.	D
5.	A

	MAFS.7.SP.3.6-FSA Practice
1.	The student says that he or she would expect 30 green marbles to be drawn out of 50 tries based on the calculation 0.6(50) = 30.
2.	The student says that it is possible for Dylan to draw exactly five green marbles in 50 tries: • Because 30 is only an estimate. • Even though it is not very likely.
3.	The student estimates that the sum of 10 will occur 50 out of 600 tries based on the calculation $\frac{1}{12} \times 600 = 50$.
4.	The student explains it is not likely Olivia will roll a sum of 10 exactly 50 times because: • It is just an estimate based on the probability. • The value is only theoretical. • It is probable but not certain.

	MAFS.7.SP.3.7
1.	**B** MAFS.7.SP.3.7a
2.	**80 times for yellow.** **The experiment will be repeated 240 times.** **120 times have been predicted as blue.** **240-120 =120** **40 times have been predicted as green.** **120-40 = 80.** **That leaves 80 times left to be predicted as yellow.** MAFS.7.SP.3.7b
3.	**6 Blue tiles: Susan predicted that 120 times she would pull a blue tile. She would repeat the experiment 240 times. 120 is half of 240 and there are 12 tiles.** **Half of 12 is 6.** **2 Green tiles: 4 is $\frac{1}{6}$ of 24, so 40 is $\frac{1}{6}$ of 240. $\frac{1}{6}$ of the total of 12 tiles is 2.** **4 Yellow tiles: 8 is $\frac{1}{3}$ of 24, so 80 is $\frac{1}{3}$ of 240. $\frac{1}{3}$ of the total of 12 tiles is 4.** MAFS.7.SP.3.7b
4.	**P(Sally) = $\frac{1}{24}$ or equivalent (because there is one student named Sally out of 24 possible students who might be assigned the defective monitor).** MAFS.7.SP.3.7a
5.	**P(boy at hub A) = $\frac{3}{24}$ or equivalent (because there are three boys at hub A out of 24 possible students who might be assigned the defective monitor).** MAFS.7.SP.3.7a

<table>
<tr><td></td><td>MAFS.7.SP.3.7-FSA Practice</td></tr>
<tr><td>1.</td><td>The probability of selecting a boy is $\frac{1}{2}$ or 50% (or equivalent) because there is one favorable outcome out of two possible outcomes.
MAFS.7.SP.3.7a</td></tr>
<tr><td>2.</td><td>The probability is $\frac{16}{20}$ (based on the observed frequency) or 80% (or equivalent) because tails was tossed 16 out of 20 times.
MAFS.7.SP.3.7b</td></tr>
<tr><td>3.</td><td>The probabilities may differ because the coin is not fair or is being tossed in an unfair manner.
The student may suggest that the coin is fair and that this pattern of events, although possible, is highly unlikely.
MAFS.7.SP.3.7b</td></tr>
<tr><td>4.</td><td><table><tr><th>Color</th><th>Frequency</th><th>Probability</th></tr><tr><td>blue</td><td>29</td><td>0.19</td></tr><tr><td>yellow</td><td>57</td><td>0.38</td></tr><tr><td>green</td><td>34</td><td>0.227</td></tr><tr><td>red</td><td>30</td><td>0.2</td></tr><tr><td>purple</td><td>0</td><td>0</td></tr></table>
MAFS.7.SP.3.7b</td></tr>
<tr><td>5.</td><td>The student says the outcomes are not equally likely because the probabilities are very different (e.g., yellow was picked much more than expected and purple was not picked at all).
The student explains that there may not have been one of each marble in the bag since purple was never chosen and yellow was chosen almost twice as often as red.
MAFS.7.SP.3.7b</td></tr>
</table>

<table>
<tr><td></td><td>MAFS.7.SP.3.8</td></tr>
<tr><td>1.</td><td>Part A: P(V6 wagon) = $\frac{4}{24}$ or equivalent.

MAFS.7.SP.3.8a

Part B: There are four branches labeled "wagon," and from each wagon is an option for either a four-cylinder or six-cylinder engine.

Although there are eight wagon choices, only four of them are V6, which makes the number of favorable outcomes (the numerator) four. Then find the total number of possible car combinations by counting the end of each branch, which makes the total possible outcomes (the denominator) 24.

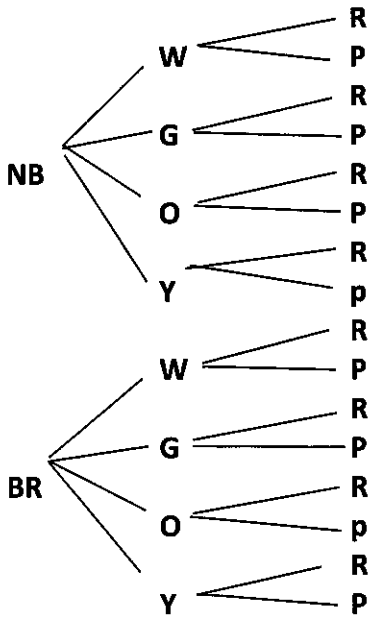
MAFS.7.SP.3.8b</td></tr>
<tr><td>2.</td><td>A.

<table><tr><th>1</th><th>2</th><th>3</th></tr><tr><td>111</td><td>222</td><td>333</td></tr><tr><td>112</td><td>221</td><td>331</td></tr><tr><td>113</td><td>223</td><td>332</td></tr><tr><td>121</td><td>212</td><td>311</td></tr><tr><td>122</td><td>213</td><td>312</td></tr><tr><td>123</td><td>211</td><td>313</td></tr><tr><td>131</td><td>231</td><td>321</td></tr><tr><td>132</td><td>232</td><td>322</td></tr><tr><td>133</td><td>233</td><td>323</td></tr></table>
B. 21 outcomes

MAFS.7.SP.3.8b</td></tr>
<tr><td>3.</td><td>D

MAFS.7.SP.3.8c</td></tr>
<tr><td>4.</td><td>0.36

MAFS.7.SP.3.8c</td></tr>
</table>

	MAFS.7.SP.3.8-FSA Practice
1.	A.  MAFS.7.SP.3.8b B. $\frac{1}{4}$ MAFS.7.SP.3.8a
2.	A. **16 outcomes** B. **13 outcomes** MAFS.7.SP.3.8b
3.	**B** MAFS.7.SP.3.8c
4.	**$\frac{8}{15}$ or equivalent** *This question is a possible sample of an equation editor response technology-enhanced item.* MAFS.7.SP.3.8c
5.	**The student describes a simulation that will generate frequencies for the events of "no cats with an orange coat" and "at least one cat with an orange coat" (e.g., rolling four number cubes with the number one representing a cat with an orange coat).** MAFS.7.SP.3.8c