



Incoming 7th Grade
Math Packet
Summer 2023

Dear Parents:

As the summer draws near, we extend to you and your child our best wishes for a relaxing and enjoyable vacation. We hope that as you plan your time together, you also look forward to working with your child to review the math skills they have learned throughout this past school year. We believe that completing the summer math packet is a great tool to help ensure your child's math skills and knowledge are maintained throughout the summer enhancing their success in Mathematics in the upcoming school year.

As mathematics is a cumulative discipline with each level building upon previously learned concepts, our students are faced with increased rigor and a higher level of complexity. Our goal steers students towards independent mathematical thought. With this thought in mind, your child's teachers have developed summer math packets that address key concepts from the previous grade. These packets provide students with extra practice on needed skills to help maintain mastery, so they are fully prepared for the next year's Math class.

All students entering grades 6-8 are expected to complete the assigned summer math packet as a way to help keep your child's math skills sharp. For optimal results, the packet has been divided into weeks. This will ensure that skills are being reinforced weekly and that the students do not become overwhelmed.

When your child returns in August, the summer math packet will be collected by your child's teacher on August 16, 2023. Your student's math teacher will then spend a few days in the first week of school reviewing the concepts covered within the summer math packet.

Students will receive a hard copy of the packet from their current teacher and electronic copies are available on the school website (<https://www.dentonmagnet.com/>).

We are hopeful that with your assistance, your child will experience a smooth transition in the upcoming school year, and we can achieve our goal of reinforcing, maintaining, and extending skills acquired during this past school year.

Sincerely,

Denton Magnet Math Teachers

Directions: The summer packet is separated into weekly sections to help you divide the work over the weeks, so you do not feel overwhelmed with the problems. Be sure to show your work for every problem and remember that calculators should NOT be used! Also, NO WORK = NO CREDIT! Happy Mathing!

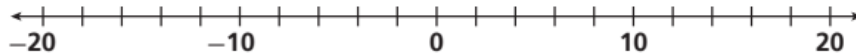
WEEK 1: May 30th- June 2nd (Integer Concepts and Rational Numbers)

1- On Tuesday, David deposits \$20 in his checking account. On Wednesday, he buys a sandwich for \$6. On Friday, he withdraws \$50. Write the integers that represent the transactions David made.

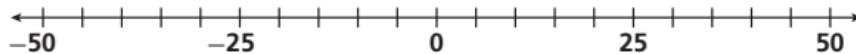
2- Courtney collects action figures. The change in value for one of her action figures is -\$12. Describe the meaning of this integer.

For questions 3 and 4, graph the numbers on the number line. Then write an inequality to compare the numbers.

3- 8 and -12



4- -47 and 39



5- Find the absolute value of the following:

$| -27 | = \underline{\hspace{2cm}}$

$| 52 | = \underline{\hspace{2cm}}$

$| -137 | = \underline{\hspace{2cm}}$

6- Determine which number has the greater magnitude:

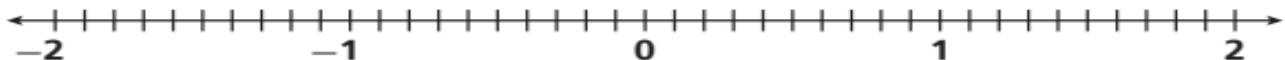
$2 \text{ and } -7 \underline{\hspace{2cm}}$

$-35 \text{ and } -25 \underline{\hspace{2cm}}$

$-5 \text{ and } 9 \underline{\hspace{2cm}}$

7- Graph each number and its opposite on the number line.

$\frac{2}{10}, 1\frac{3}{10}, \frac{8}{10}, \frac{7}{10}$



- 8- Hot dogs are sold in packages of 10. Hot dog buns are sold in packages of 8. What is the fewest number of packages of each that could be bought in order to have the same number of hot dogs and buns?
- List the multiples of 8 and multiples of 10.
 - Find the least common multiple of 8 and 10.
 - Determine how many packages of each you would buy to get the LCM.
 - What is your answer? _____
- 9- Bob records the temperatures in degrees Celsius for a week: -0.2° , 1.09° , -1.6° , -1.74° , and 0.48° . Write the temperatures in order from coldest to warmest.

WEEK 2: June 5th- June 9th (Fraction Division)

- 1- Raymond is making stir-fry rice for dinner. The recipe says to $\frac{3}{4}$ tablespoon of the ground ginger, but he only has a $\frac{1}{8}$ tablespoon measuring spoon. How many measuring spoons of ginger should he add?
- 2- Jessica volunteers at the local animal shelter. Each dog eats $\frac{1}{2}$ lb of food at each meal. If dog food comes in bags of $20\frac{1}{2}$ lbs, how many dogs can Jessica feed from one bag of dog food.
- 3- Vanessa runs $3\frac{3}{4}$ miles in $30\frac{1}{2}$ minutes. What is Vanessa's average time per mile?
- 4- At a health food store, a bulk bag of rice that weighs $62\frac{2}{5}$ lbs. is to be divided into 24 smaller bags. How much rice will go in each bag?

5- The area of a rectangular patio is $87\frac{1}{8}$ square feet. The length is $8\frac{1}{2}$ feet. What is the width of the patio?

6- Julie buys 3 bags of apples that weigh the same amount. If the combined weight of all 3 bags is $16\frac{1}{5}$ pounds, how much does one bag weigh?

Perform the given operation for problems 7-10.

7- $3\frac{5}{8} - 1\frac{3}{4} =$

8- $3\frac{5}{8} \cdot 1\frac{3}{4} =$

9- $3\frac{5}{8} \div 1\frac{3}{4} =$

10- $3\frac{5}{8} + 1\frac{3}{4} =$

WEEK 3: June 12th- June 16th (Multi-Digital Decimal Operations)

1- Cory bought 2.45 pounds of fish and 1.62 pounds of chicken. How many more pounds of fish did he buy than chicken?

2- Use the table to subtract $295.6 - 34.23$

			.	
			.	
			.	

3- A natural lake is 3.45 miles long and 0.98 miles wide. Because of its size it is good for boating.

a. Write an expression that can be used to find the area of the lake.

b. Find the area of the lake in square miles.

c. Only $\frac{7}{10}$ of the lake is open to recreational boaters. What is the area of the lake the boaters can use?

4- Paula has 3.5 loads of laundry to do. Each load requires 1.125 cups of laundry detergent. How much laundry detergent does she need to finish her laundry?

- 5- A shoe company has 5,890 boxes of shoes to stock. They can fit 120 boxes on a shelf. How many shelves are needed to stock the shoes? Explain your answer.
- 6- To prepare for cross country, Kennedi runs 84,480 feet each week. There are 5,280 feet in a mile. How many miles does Kennedi run each week?
- 7- De'Mari sets a goal of reading 9,540 pages. He reads 530 pages a week. How many weeks will it take him to reach his goal?
- 8- Cory is scheduled to work 36 hours this week. He already worked 27.25 hours. How many more hours does Cory have to work this week?
- 9- A 64-ounce bag of rice cost \$7.68. What is the cost per ounce of the rice?
- 10- Jimmy ran a 400-meter race in 68 seconds. Assuming his pace was constant, how long did it take him to run 1 meter?

WEEK 4: June 19th- June 23rd (Rates and Ratios)

- 1- In a bag of marbles, there are 8 red marbles, 7 blue marbles, and 9 green marbles.
- A. What is the ratio of red marbles to blue marbles?
- B. What is the ratio of green marbles to red and blue marbles?
- C. What is the ratio of blue marbles to total marbles in the bag?

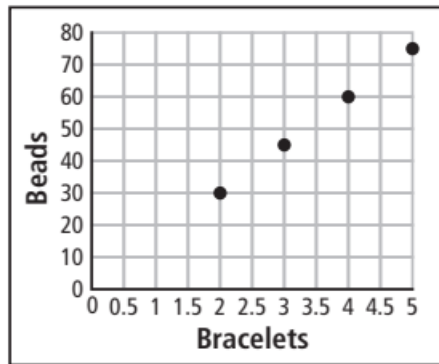
2- A recipe calls for 2 cups of butter for every 5 cups of flour.

- A. What is the ratio of flour to butter?
- B. What is the ratio of butter to flour?
- C. If the recipe is doubled, what is the ratio of butter to flour?

3- A car-rental company advertises a special rate on its website. It charges the same amount for each day rented. Complete the table to show the total cost of a rental for different numbers of days.

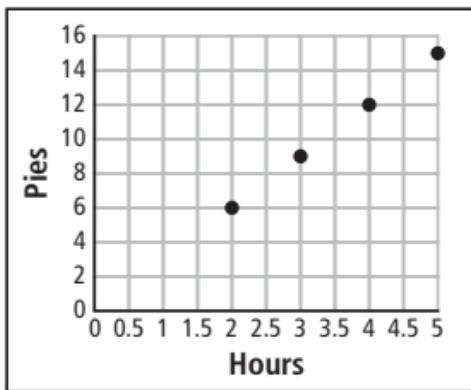
Days	1		4	5	
Total Cost (\$)	75	225			525

4- The graph shows the number of beads a jeweler uses to make bracelets. Write the ratio to show the number of beads necessary to make one bracelet.



5- A telecommunications company offers two calling cards. The first card cost \$25 for 750 minutes, while the second card costs \$40 for 1,300 minutes. Which is the better buy?

6- The rate at which Baker's Bakery can make pies is shown in the graph.



- A. How many pies can Baker's Bakery make in 7 hours?
- B. Waters' Bakery can make 5 pies in $2\frac{1}{2}$ hours. Which bakery makes pies at a faster rate. Explain.

- 7- Alex and Carmen both sell items at craft fairs. Alex earns \$36 for 3 birdhouses, and Carmen earns \$75 for 5 scarves. What is the unit rate that each person earns for their craft? Complete the table for each person.

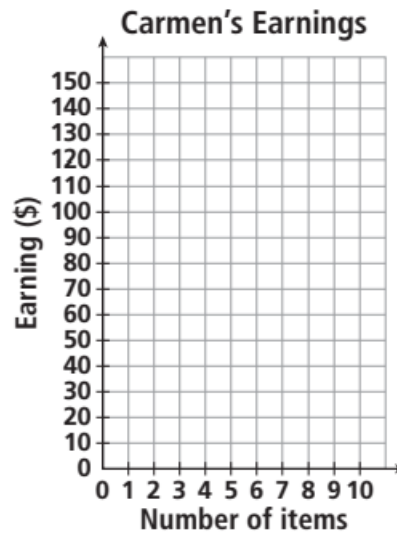
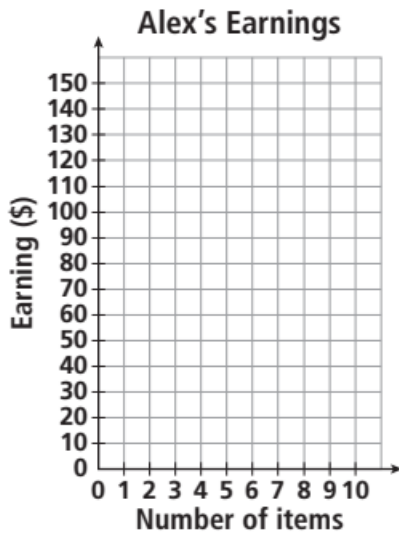
Alex

Number of items	1	2			10
Earnings (\$)			60	84	

Carmen

Number of items	1	2			10
Earnings (\$)			60	90	

- 8- Take the information from the tables in question 7 to plot the values on the appropriate graph.



- 9- Look at the graphs in question 8. How are they similar? How are they different? Explain your answer.

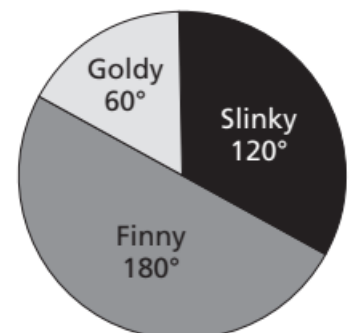
- 10- Looking at the information from questions 7-9, how many birdhouses will Alex need to sell in order to make as much as Carmen does when she sells 12 scarves? Explain how you came to that conclusion.

- 11- The science teacher brought a goldfish to her room at school. A total of 36 students voted on the name of the goldfish. The results of the vote are shown in the circle graph. Find the total number of votes for each name.

Goldy:

Slinky:

Finny:



- 12- Brooke measures the height of her bean plant for a science project. The bean plant is 12.5 inches tall. How many centimeters tall is the bean plant?
- 13- An Olympic-sized swimming pool holds 2,500,000 liters of waters. About how many gallons of water does an Olympic-sized swimming pool hold?
- 14- Tanner is at the farm supply store. She finds an 8-pound bag of chicken feed for \$6.24 and a 10-pound bag of chicken feed for \$7.99. Which of the two bags of chicken feed offers the better value?
- Divide to determine the unit rate for the 8-pound bag.
 - Divide to determine the unit rate for the 10-pound bag.
 - Compare the two-unit rates using $>$, $<$, or $=$.

WEEK 5: June 26th- June 30th (Percents)

- 1- On a quiz, David got 22 out of the 25 questions correct. What was his score as a percent?
- Write the ratio for David's score.
 - Divide the two numbers in the ratio.
 - Multiply by 100 and write as a percent.
- 2- The ratio of students to adults in a community band is 47 to 53. What percent of the band is students?
- 3- Brandy orders a set of beads. She receives 96 beads, and 75% of them are green. How many green beads does Brandy receive. Solve by using a decimal equivalent.

- 4- At a pep-rally, there are 270 students in attendance. There are 54 seniors at the pep rally. What percentage of the students at the pep rally are seniors? Solve using proportional reasoning.
- 5- This afternoon, Debbie takes a Civics assessment. There are 80 questions and Debbie answers 85% correctly. How many questions did Debbie get correct?
- 6- In a class, 10 students like pizza. If 40% of the students like pizza. How many students are in the class?
- 7- At Denton Magnet School, 105 students are sixth graders. If 35% of the students in the school are sixth graders, how many students are there in school?
- 8- Danielle earned \$250 last month and saved 20% of her earnings. She saved _____ dollars last month. She is saving for a new gaming system that costs \$450. At this rate, how many months will it take Danielle to buy the game system, and will she have money leftover?

WEEK 6: July 3rd- July 7th (Numerical and Algebraic Expressions)

- 1- The number of teams competing in a tournament is equal to 2^6 . How many teams are competing in the tournament?
- a. Write the expression as repeated multiplication.
- b. Multiply using a pattern.
- 2- For the season Julio has made 24 field goals worth 2 points each, 7 field goals worth 3 points each, and 15 free throws worth 1 point each. Write and evaluate a numerical expression to find the number of points that Julio has scored this season.
- 3- Evaluate each expression.
- a. $36 + 42 \div 7 =$ _____ b. $2^3 - 3 \cdot 2 =$ _____ c. $9 + 18 \div 2 \cdot 3 =$ _____
- 4- The perimeter of a rectangle can be written as $2l + 2w$, where l is the length and w is the width. A rectangular blacktop at Denton Middle School is 45 yards long and 35 yards wide. What is the perimeter, in yards, of the blacktop?

- 5- The expression $15p$ represents the cost per person to order the dinner special at El Papi. Evaluate the cost when $p= 12$.
- 6- At the movie theater it costs \$12 for each adult ticket and \$9 for each student ticket. The expression $12a + 9s$ can be used to find the ticket sales in dollars. For the last showing, 64 adult tickets and 84 tickets were sold. What was the total ticket sales for the showing?
- 7- Write an expression that is equivalent to $6(x + 2y) + 8y$.
- 8- Are expressions $6x + 10y + 2x - 4y$ and $2(4x + 3y)$ equivalents? Explain how you know.

WEEK 7: July 10th- July 14th (Equations and Inequalities)

- 1- There are 4 times as many cats as dogs at the animal shelter. If there are 12 cats, how many dogs d are there? Write and solve an equation to find out how many dogs there are. How many dogs are there?
- Write what you know.
 - Write what you need to represent?
 - What operation is needed?
 - Write the equation.
 - Solve the equation.
- 2- There are 12 trees on the Smiths' property. The Smiths plant some trees, and now there are 21 trees. How many trees t do the Smiths' plant? Write an equation to find the number of trees that are planted.
- 3- Melanie buys a magazine for \$5.75. She gives the cashier a \$10 bill. If Melanie receives the correct change, how many change c in dollars will she receive?
- Write an equation for the problem.
 - Solve the equation.

4- Yasmine earns \$54 for dog-walking. She walks her neighbor's dog 12 times.

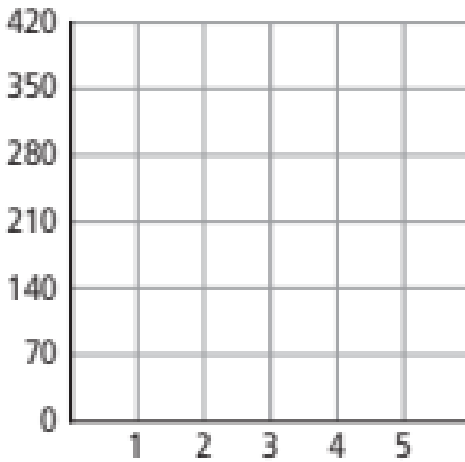
a. Write an equation to represent how to find the amount Yasmine earns per dog walk. Explain what your variable represents.

b. How much does Yasmine earn per dog walk?

5- The equation $d = 70t$ gives the distance d in miles traveled by a train in t hours. Complete the table to relate the distance traveled in 0 to 5 hours.

Time in hours	0	1	2	3	4	5
Distance in miles						

6- Plot the points on the graph from the information you provided in the table. The data is continuous. Make sure to label your graph.

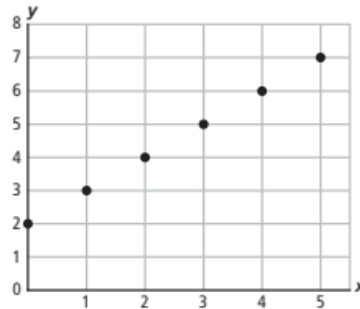
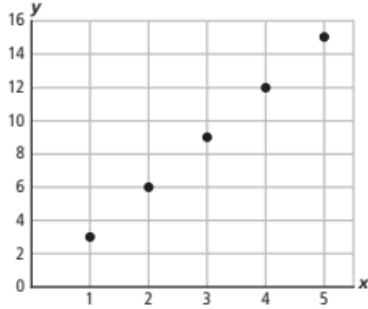


7- Write an equation representing each table.

x	y
2	6
4	8
6	10
7	11

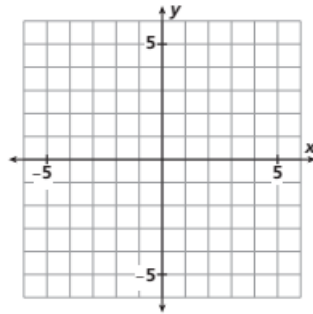
x	y
3	18
5	30
7	42
9	54

8- Write an equation representing each graph.

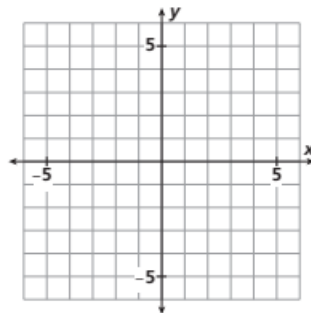


WEEK 8: July 17th- July 21st (Polygons and Area on a Coordinate Plane)

1- Graph the points $(1,4)$, $(-2,-3)$, and $(4,-3)$ and connect them to form a polygon. Identify the figure drawn.

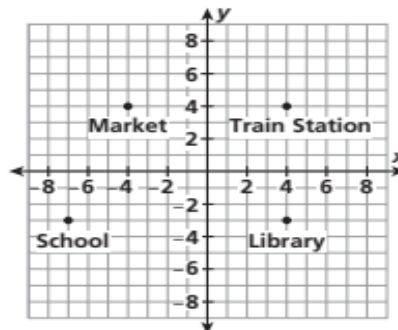


2- Points $J(2,3)$ and $K(-3, -3)$ are two vertices of a right triangle. What are the possible coordinates of the third vertex? Graph the vertices and connect them to form the triangle.

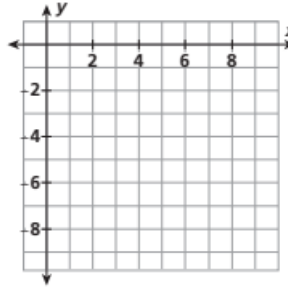


3- Determine the distance between the landmarks. Each unit on the coordinate plane corresponds to 1 kilometer.

- a. the train station and the library
- b. the train station and the market
- c. the library and the school



- 4- Graph a rectangle with vertices at the points (2, -2), (8, -2), (8,-9), and (2,-9). Then find the perimeter and area.



Perimeter: _____

Area: _____

Use the figure to the right to answer the questions 5- 9.

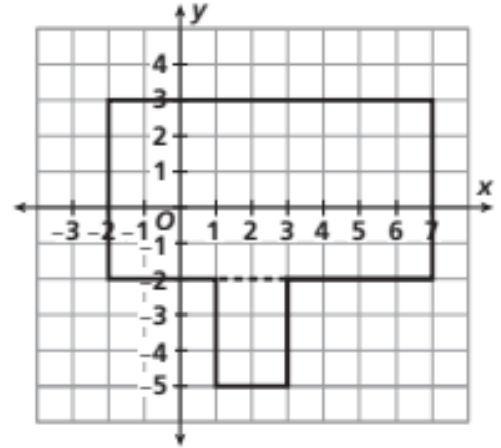
- 5- What is the perimeter of the larger rectangle?

- 6- What is the area of the larger rectangle?

- 7- What is the perimeter of the smaller rectangle?

- 8- What is the area of the smaller rectangle?

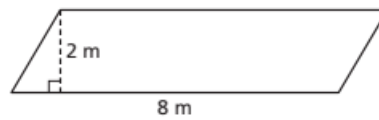
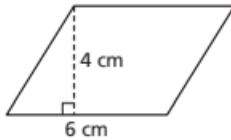
- 9- What is the total area of the figure? What is the total perimeter?



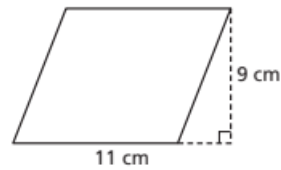
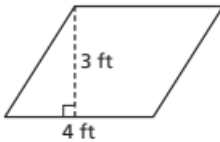
WEEK 9: July 24th- July 28th (Area, Surface Area, Volume)

Find the area of each parallelogram.

1-

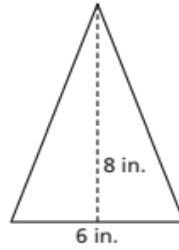
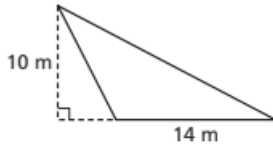


2-



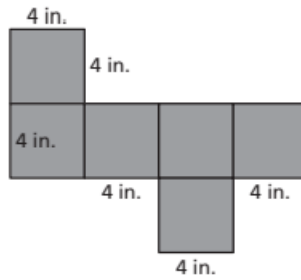
Find the area of each triangle.

3-

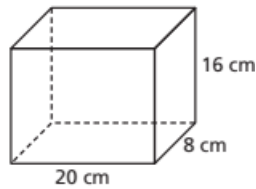


4- A trapezoid's longer base is four times its shorter base. If the trapezoid has an area of 80 cm^2 and a height of 8 cm , what is the length of each base?

5- Identify what solid figure the net folds into. Then find the surface area of the net.



6- Find the volume of the rectangular prism using the dimensions given.



7- A cube-shaped box can be made from $486 \text{ square inches}$ of cardboard. What is the volume of the box?

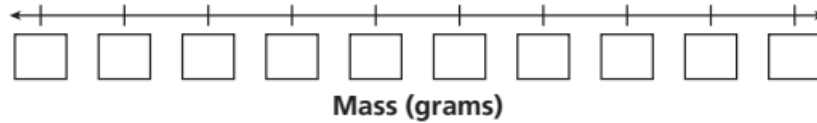
8- Logan's cooler holds $7,200 \text{ in}^3$ of ice. If the cooler has a length of 32 inches and a height of $12\frac{1}{2} \text{ inches}$, what is the width of the cooler?

WEEK 10: July 31st- August 4th (Data Collection and Mean, Median, Mode)

- 1- The table below shows information about the tallest buildings in the world. Complete each statement about the data.

Building	Burj Khalifa	Shanghai Tower	Abraj Al-Bait Clock Tower	Ping An Finance Centre	Lotte World Tower
Height	828 m	632 m	601 m	599 m	554.5 m
Year built	2010	2015	2012	2017	2016

- How many observations are there?
 - How many attributes were measured?
 - How were the attributes measured?
- 2- Sanji records the following masses (in grams) of the rocks in her rock collection: 43, 37, 44, 39, 41, 35, 39, 40, 39, 40. Make a dot plot with the data.

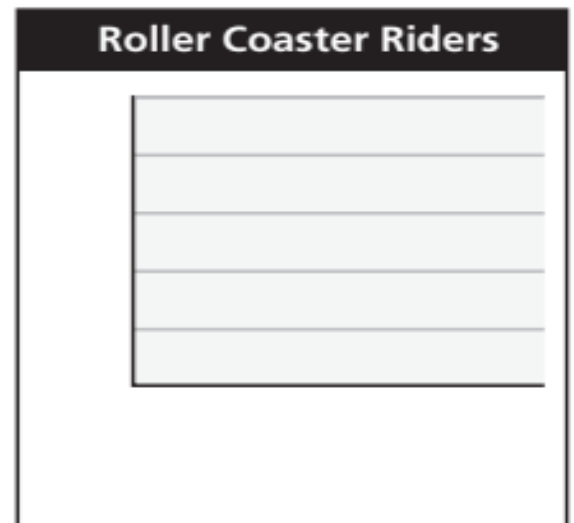


- 3- Use the dot plot that you created to find the difference between the greatest and least masses of rocks in the collection.
- 4- Use the dot plot that you created to find the most common mass of the rocks in the collection.
- 5- An amusement park employee records the ages of the people who ride the new roller coaster during a fifteen-minute period.

Ages of riders: 47, 16, 35, 45, 43, 11, 29, 31, 50, 23, 18, 18, 20, 29, 17, 18, 48, 56, 24, 18, 21, 38, 12, 23

Complete the frequency table. Then make a histogram.

Interval	Frequency
10–19	



6- Use the frequency table and histogram to describe two things you know about the rollercoaster riders.

7- Find the mean, median, and mode of each data set.

3, 12, 11, 7, 5, 5, 6, 5, 9

mean: _____ median: _____ mode: _____

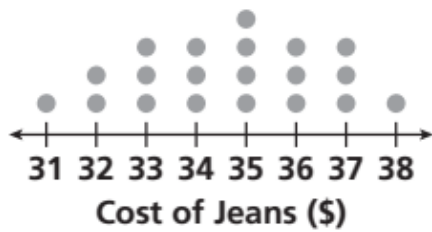
30, 39, 42, 29, 39, 40, 36, 46, 41

mean: _____ median: _____ mode: _____

133, 215, 254, 108, 206, 159, 206

mean: _____ median: _____ mode: _____

8- Describe the data set by identifying clusters, peaks, gaps, and symmetry.



Clusters:

Peaks:

Gaps:

Symmetry