

Fractions Milestones Review

Name: _____

Due Date: _____

Topics & Tips	Practice
<p>Converting Mixed Numbers to Improper Fractions</p> <ol style="list-style-type: none"> Multiply the whole number by the denominator Add the numerator to your product. This creates the numerator for your improper fraction. Put your new numerator over the old denominator 	<p>Convert each of the following mixed numbers to improper fractions.</p> $3\frac{1}{3} = \qquad 5\frac{3}{4} = \qquad 2\frac{5}{7} =$ $4\frac{7}{9} = \qquad 11\frac{3}{4} = \qquad 15\frac{1}{2} =$
<p>Converting Improper Fractions to Mixed Numbers</p> <ol style="list-style-type: none"> Divide the numerator by the denominator. The quotient will be the whole number in your mixed number. If you have a remainder, put it over the denominator. This will make the fraction in your mixed number 	<p>Convert each of the following improper fractions into mixed numbers.</p> $\frac{65}{3} = \qquad \qquad \qquad \frac{101}{5} =$ $\frac{78}{10} = \qquad \qquad \qquad \frac{88}{11} =$
<p>Simplifying Fractions</p> <p>If a numerator and denominator have a common factor (in other words, a number they will both divide by), it is not in simplest form.</p> <p>Divide the numerator and denominator by the same number until there are no more common factors (besides 1).</p>	<p><i>Let's find and circle the fractions that are NOT in simplest form.</i></p> $\frac{1}{2} \quad \frac{2}{4} \quad \frac{6}{12} \quad \frac{1}{4} \quad \frac{2}{3} \quad \frac{12}{36} \quad \frac{7}{21}$ <p>Simplify each fraction or mixed number below.</p> $4\frac{8}{10} = \qquad \qquad \qquad \frac{12}{30} =$ $6\frac{3}{15} = \qquad \qquad \qquad \frac{15}{40} =$

Dividing Fractions (Number Sentences)

Remember that to divide fractions, we must multiply by the reciprocal.

Step 1: Change any whole numbers to fractions. Change any mixed numbers to improper fractions.

Step 2: Multiply by the reciprocal. (Use the KCF method to convert to a multiplication problem).

KEEP the first fraction the same

CHANGE the division into multiplication

FLIP the second fraction

Step 3: Multiply numerators together. Multiply denominators together.

Step 4: Check answer. If it is an improper fraction, change to a mixed number. If it can be reduced, reduce it!

$$\frac{3}{4} \div \frac{5}{6} =$$

$$\frac{1}{12} \div \frac{2}{3} =$$

$$5 \div \frac{1}{2} =$$

Dividing Fractions (Word Problems)

Step 1: Write your number sentence. Remember, division asks several things.

$10 \div 2$ can ask:

-“how many groups of 2 are in 10”

-“if I split 10 into 2 groups. how many will be in each group”

-“what times 2 equals 10”

Step 2: Change any whole numbers to fractions. Change any mixed numbers to improper fractions.

Step 3: Multiply by the reciprocal. (Use the KCF method to convert to a multiplication problem).

KEEP the first fraction the same

CHANGE the division into multiplication

FLIP the second fraction

Step 4: Multiply numerators together. Multiply denominators together.

Step 5: Check answer. If it is an improper fraction, change to a mixed number. If it can be reduced, reduce it!

You have $4\frac{1}{2}$ cups of goldfish to divide evenly among 3 children. How many goldfish will each child receive?

My cookie recipe calls for $\frac{1}{4}$ cups of sugar. If I buy $5\frac{1}{2}$ cups of sugar at the store, how many batches of the recipe can I make?

A factory uses $\frac{3}{8}$ of a barrel of raisins in each batch of granola bars. Yesterday, the factory used $\frac{3}{8}$ of a barrel of raisins. How many batches of granola bars did the factory make yesterday?

Decimals Milestones Review

Name: _____

Due Date: _____

Topics & Tips

Rounding Decimals

tens	ones	decimal point	tenths	hundredths	thousandths
		•			

To round a decimal, first decide which place value you would like to round to.

Next, look at the very next digit to the right.

If that digit is 0, 1, 2, 3, or 4 you will keep the number to be rounded like it is.

If that digit to the right is 5, 6, 7, 8, or 9 you will bump the number to be rounded up one.

Example: Round each to the nearest tenth

$$4.527 = 4.5 \quad 0.875 = 0.9 \quad 1.35 = 1.4$$

Practice

Round to the nearest whole number.

$$5,742.085 =$$

Round to the nearest thousandth.

$$0.38645 =$$

Round to the nearest tenth.

$$0.345 =$$

Round to the nearest hundredth.

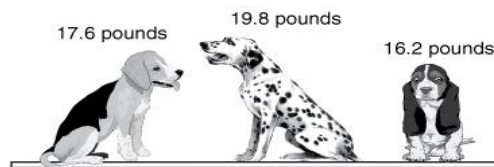
$$0.938784 =$$

Adding Decimals

1. Add a decimal point to the right of any whole numbers.
2. Line up the numbers so the decimals are in a column.
3. Add zeros as place fillers.
4. Drop down the decimal so it will be in your answer.
5. Add like normal.

Zachary measures his plants. One is 9.2 inches, the next is 15.05 inches, and the third is 16 inches. What is the total height of Zachary's plants?

The bench that the three puppies are sitting on was designed to hold a maximum weight of 60 pounds. Will the bench be able to support the puppies? Defend your answer.



<p>Subtracting Decimals</p> <ol style="list-style-type: none"> 1. Add a decimal point to the right of any whole numbers. 2. Line up the numbers so the decimals are in a column. 3. Add zeros as place fillers. 4. Drop down the decimal so it will be in your answer. 5. Subtract like normal. 	<p>Yesterday Jeremy ran 5.25 miles and Maggie ran 3.9 miles. How much farther did Jeremy run?</p> <p>The melting point of sodium is 97.8 degrees Celsius. The melting point of potassium is 63.65 degrees Celsius. How much higher is the melting point of sodium?</p>
<p>Multiplying Decimals</p> <ol style="list-style-type: none"> 1. Remove any zeros that are on the very front or the back of the number. 2. Take away the decimal point. 3. Multiply like you normally would. 4. Once you have a product, look back at the original numbers to be multiplied and count how many digits were behind the decimal. <p>Put the decimal point back in your answers so that the same number of digits are behind the decimal.</p>	<p>Ashley needs material for her school project. She buys 9 yards of material at \$4.85 per yard. What is the total cost of the material?</p> <p>A sheet of printer paper is 8.5 by 11 inches. What is the area?</p>
<p>Dividing Decimals</p> <ol style="list-style-type: none"> 1. Set the problem up in a division house. The first number in a division sentence ALWAYS goes in the house, even if it is smaller. 2. Look at the number on the outside of the house. If it is not a whole number, move the decimal point to the right until it is. 	<p>Find each quotient.</p> $1,724.1 \div 7 =$

3. Now look inside the house. Move the decimal the same number of places to the right that you moved it on the outside of the house. You may have to add zeros if you run out of numbers.

4. Once you have moved the decimal inside the house, rocket it up to the roof of the house.

5. Divide like you normally would. We do not want any remainders, so add zeros onto the number in the house and keep dividing.

If you keep adding zeros and there is still a remainder, round the quotient to the THOUSANDTHS place.

A sandwich which is 1.5 feet long is cut into 0.25-foot pieces. How many pieces will there be?

Ava paid \$4.90 for 2.5 pounds of walnuts. What is the cost of one pound of walnuts?

Algebra Milestones Review

Name: _____

Due Date: _____

Topics & Tips	Practice
<p style="text-align: center;">Exponents</p> <p>When repeated multiplication is taking place, an exponent is used to shorten the number sentence. For example:</p> <p>5^4 means that the base (5) is getting multiplied the number of times the exponent tells us (4).</p> <p>$5 \times 5 \times 5 \times 5 = 625$</p>	<p>$6^2 =$ $8^3 =$</p> <p>Write $(\frac{1}{6})^3$ as a product of the same factor. Then find the value.</p> <p>$7^? = 49$ $?^3 = 27$</p>
<p style="text-align: center;">Order of Operations</p> <p>The order of operations tells us which order to evaluate an expression in so that we get the same answer every time. Remember it using PEMDAS:</p> <p>Parenthesis: Solve anything in () first. If there are multiple things going on in (), follow PEMDAS still</p> <p>Exponents: Evaluate all exponents next</p> <p>Multiply and Divide from left to right at the same time.</p> <p>Add and Subtract from left to right at the same time</p>	<p>Evaluate the expression: $21 - 3^2 + 2$</p> <p>What is the value of the expression? $58 - 2 \cdot 3 + 1$</p> <p>What is the value of $2 + 3n$ if $n = \frac{1}{2}$?</p> <p>$7 + 5^2 =$ $(6 + 12) \div 3^2 \cdot (10 - 4 + 2)$</p>
<p style="text-align: center;">Translating Word Phrases to Expressions</p> <p>Use operation words in expressions to help decide if you should add, subtract, multiply or divide.</p> <p style="text-align: center;"><u>Examples</u></p> <p>Add → More than, in addition to, plus</p> <p>Subtract → difference, less than, many more</p> <p>Multiply → times, twice, each</p> <p>Divide → cut, split, handed out</p>	<p>Write an expression for each of the following situations:</p> <p>Davante made and sold 8 pitchers of lemonade at his lemonade stand. He used the same number of lemons in each pitcher. Find the total number of lemons Davante used in all.</p> <p>Daniele split her donuts into 3 groups.</p> <p>2.5 times as many pages</p> <p>34 less than a number</p>

Parts of an Expression

Term: parts of an expression separated by + or –

Variable: a letter than stands for a number

Coefficient: a number multiplied by a variable (a letter “touching” a number)

Constant: a number that does not change (“by itself”)

1. How many terms are in the expression $10x + y + 3x + 8$?
2. In the expression $10x + y + 3x + 8$, which term is a constant?
3. List the coefficients in the expression $10x + y + 3x + 8$.
4. Simplify the expression by combining like terms:
 $10x + y + 3x + 8$

Substitution

Substitution means taking a variable out of an expression and putting a number in. Think about substitution in a soccer game or a substitute teacher.

First, take out the variable and replace it with a number. Remember that you may have to add in a multiplication sign.

Then, evaluate the expression. Be sure to use order of operations.

Example

Evaluate $5x + 12$ when $x = 3$.

$$5x + 12 \rightarrow 5 \cdot 3 + 12$$

$$= 15 + 12$$

$$= 27$$

Look at the inequality: $3y > 27$.
Which set of values for y will make the inequality true?

- A. 4, 5, 8
- B. 5, 7, 9
- C. 9, 12, 14
- D. 11, 13, 22

Jamie has saved \$42 to buy books. If she buys 5 books at d dollars per book, she will have $42 - 5d$ left. How much will she have left if the books cost \$3.50 each?

What is the value of $x + y - z$ if $x = 12$, $y = 8$, and $z = 20$.

Identify the solution from the set.

$$b + 12 = 16; \quad \{ 2, 3, 4 \} \qquad 23 = 30 - g; \quad \{ 6, 7, 8 \}$$

$$\frac{1}{3}w = 6; \quad \{ 2, 12, 18 \} \qquad \frac{m}{12} = 3 \qquad \{ 4, 36, 24 \}$$

Inverse Operations to Solve Equations

To **solve an equation** (in other words, figure out what the variable is equal to), isolate the variable on one side of the equal sign.

To do this you will use inverse operations. Addition and subtraction are inverse operations. Multiplication and division are inverse operations.

Once you have your answer, substitute it into the original equation and solve to check your work!

What is the solution to $x - 152 = 138$?

Solve each equation. Check your solution.

$$8p = 72$$

$$\frac{y}{7} = 4$$

$$y + \frac{1}{2} = \frac{3}{4}$$

$$h - 6.5 = 15.35$$

$$24 = m - 15$$

$$\frac{x}{5} = 10$$

**Write $x + p = q$
 $x - p = q$
 $xp = q$,
and $x \div p = q$
Equations**

In these equations, x is the unknown. It is what we are trying to find out/solve for.

p and q are values that can be found in the story problem.

Joey had 26 papers in his desk. His teacher gave him some more and now he has 100. Which equation can be used to find how many papers his teacher gave him?

A) $x + 26 = 126$

B) $26 + x = 100$

C) $x - 26 = 100$

D) $26x = 100$

An amusement park charges \$3 per ride. Joe spends \$42 on rides. Write an algebraic equation to represent the total amount spent.

A CD costs \$14.95. This is \$7.55 less than the cost of a DVD. Write and solve a subtraction equation to find the costs of the DVD.

Sophia is buying party favors. She has a budget of \$2.75 per person for 6 people. How much can Sophia spend?

Write & Plot Inequalities for Real World Situations

Writing Inequalities

- Pick a variable to represent the unknown amount
- Compare that variable to the number given using $>$, $<$, \geq , or \leq .
 - The sign opens to the GREATER amount
 - Include the line underneath if the variable can EQUAL the number

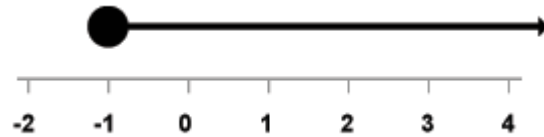
Plotting Inequalities

- Label the number we are comparing the variable to
- Draw an open circle to mark this number for $<$ or $>$
- Draw a closed in circle to mark this number for \leq or \geq
- If the variable is GREATER than the number, the arrow points to the right of the number
 - If the variable is LESS than the number, the arrow points to the left

Write the inequality shown on the graph below.



Write the inequality shown on the graph below.



The class must raise at least \$100 to go on the field trip. Write an inequality to represent this situation.

Less than 10 people fell off the boat. Represent this with an inequality.

Functions

A **function** is a situation where there is only 1 possible y-value for any x-value.

To write a function rule, determine what is happening to x in order to get y. Then turn this rule into an equation.

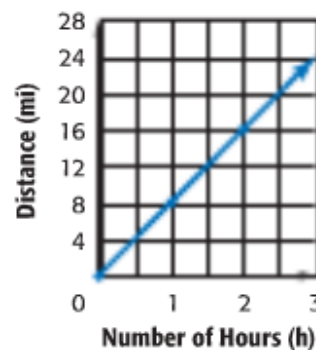
What is the value of y when x equals 5?

x	y
1	7
2	14
3	21
4	28
5	

Write a rule for the following table.

x	y
10	17
12	19
14	21
16	23

Write a rule for the graph below.



Geometry Milestones Review

Name: _____

Due Date: _____

Topics & Tips

Area of Triangles, Trapezoids & Parallelograms

-A **Triangle** is a three sided polygon. To find the area, use the formula $\frac{bh}{2}$.

-Remember that the base and height **must** make a right angle, so look for the box!

-A **Parallelogram** is a four sided figure with two pairs of parallel sides. This means that the top and bottom are parallel, AND the left and right side are parallel.

-To find the area of a parallelogram, use the formula **bh**.

-Remember that the base and height **must** make a right angle, so look for the box!

-A **Trapezoid** is a four sided figure with one pair of parallel sides. This means that the top and bottom are parallel, OR the left and right side are parallel.

-To find the area of a parallelogram, use the formula $\frac{h(b_1 + b_2)}{2}$.

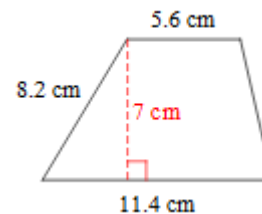
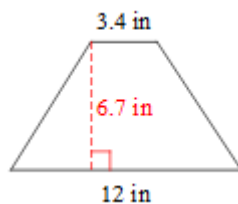
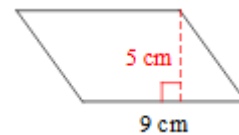
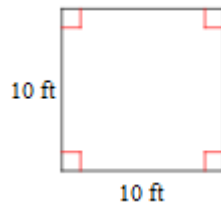
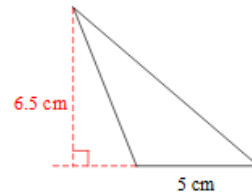
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-In other words, follow these steps:

1. Add the parallel sides
2. Multiply by height
3. Divide by 2

-Remember that the base and height **must** make a right angle, so look for the box!

Practice



Composite Area

-A composite figure is a polygon made up of other shapes

-For example, a square and a triangle may be drawn together to make a house

-To find the area of a composite figure, break it into polygons you know how to find the area of (such as parallelograms, triangles and trapezoids)

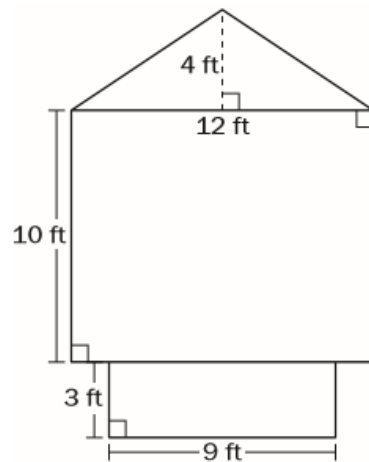
-Remember that after you break up the polygon, you may have to subtract/add given information to find missing side-lengths

-A **Triangle** is a three sided polygon. To find the area, use the formula $\frac{bh}{2}$.

-To find the area of a parallelogram, use the formula **bh**.

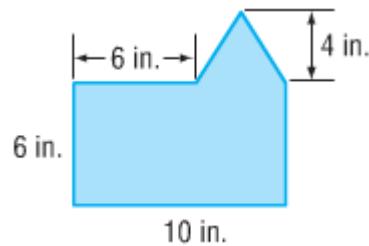
-To find the area of a trapezoid, use the formula $\frac{h(b_1 + b_2)}{2}$.

Find the area of composite figure below.



What is the total area of this figure?

- A. 141 ft²
- B. 171 ft²
- C. 180 ft²
- D. 195 ft²



Surface Area and Nets

-To find the surface area of a 3-D figure, find the area of each base and add all the areas together

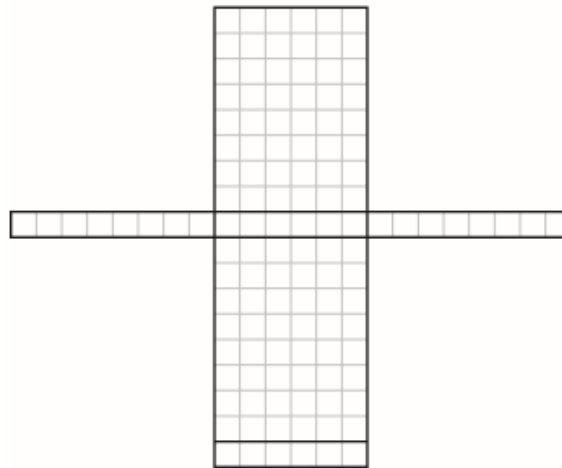
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Faye made a case for her electronic reading device using the net shown.

Faye's Case



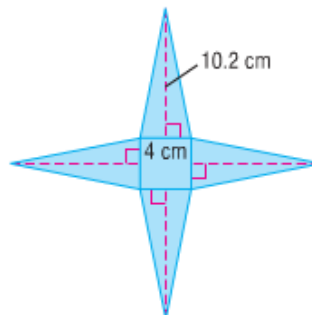
KEY

= 1 square inch

What is the total surface area, in square inches, of Faye's case?

- A. 62
- B. 96
- C. 108
- D. 124

A salt shaker is in the shape of a square pyramid. The net is shown below. What is the surface area of the salt shaker?



- F. 36.4 cm^2
- G. 40.8 cm^2
- H. 81.6 cm^2
- I. 97.6 cm^2

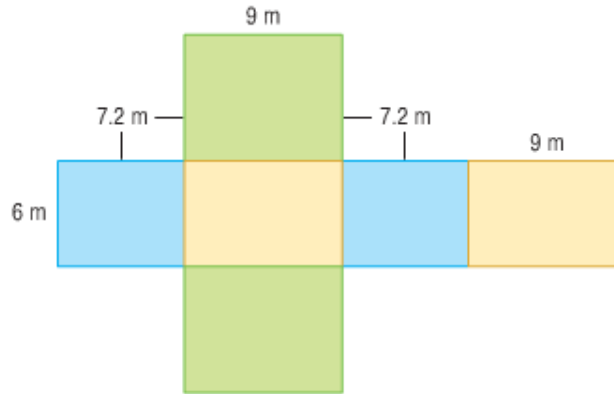
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-To find the area of a trapezoid, use the formula $\frac{h(b_1 + b_2)}{2}$.

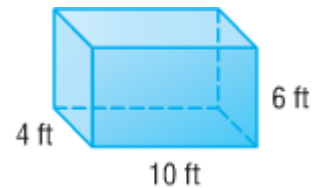
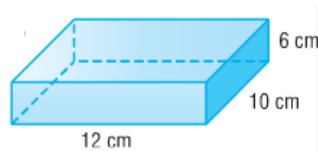


Volume Using Formula

-A rectangular prism is a six sided three-dimensional figure with all rectangular faces

-To find the volume of a rectangular prism, use the formula **lwh** or **Bh** (where B is the area of the base)

Find the volume of each rectangular prism below.



Volume Using Unit Cubes with Fractional Edge Lengths

-To **create an improper fraction**, multiply the whole number times the denominator, then add the numerator. Put this number over the denominator.

-To **create a mixed number**, divide the numerator by the denominator. The quotient is the whole number. The remainder goes over the denominator to make the fraction part.

Find the volume of the rectangular prism below.



Draw Polygons in the Coordinate Plane

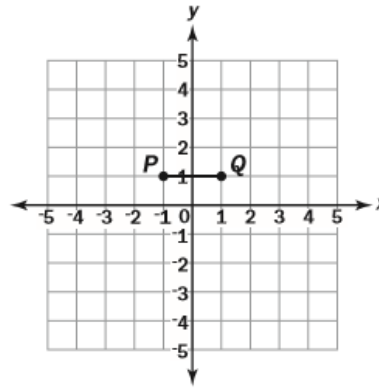
(x,y)

Remember that in an ordered pair, the first number is the **x-coordinate** and the second number is the **y-coordinate**.

The **x-coordinate** tells how far left or right to move on the x-axis, or horizontally.

The **y-coordinate** tells how far up or down to move on the y-axis, or vertically.

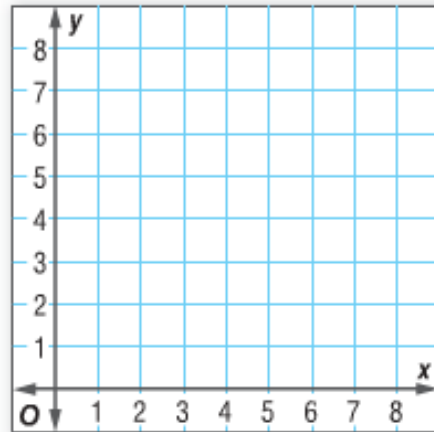
Harry is drawing Trapezoid PQRS. He plots vertices P and Q on the coordinate grid as shown.



Harry wants the trapezoid to have a height of 3 units. Which of these could be the coordinates of vertices R and S of trapezoid PQRS?

- A. $R(2, 3)$ and $S(-3, 3)$
- B. $R(3, -3)$ and $S(-4, -3)$
- C. $R(4, -2)$ and $S(-2, -2)$
- D. $R(-2, 4)$ and $S(2, 2)$

Rectangle ABCD has vertices $A(2,1)$, $B(2,5)$, $C(4,5)$, and $D(4,1)$. Use the coordinates to draw the polygon, then find the area and perimeter.



Data Milestones Review

Name: _____

Due Date: _____

Topics & Tips	Practice
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Identify Statistical Questions

-A **statistical question** anticipates and accounts for a variety of answers

Identify whether each of the questions below are statistical.

_____ How many text messages do you send each day?

_____ How many video games does Sean have at home?

_____ How many videos games do you have at home?

_____ What is the height in feet of the highest mountain in Colorado?

_____ What is the minimum driving age for each state in the United States?

_____ How many people attended last night's band concert?

_____ How many toppings do customers like on their pizza?

_____ Who was the first president of the Unites States?

_____ How much time do students in sixth grade spend on the internet each night?

Mean, Median & Mode

-The **mean** of a data set is the "average". To find the mean:

1. Add up all the data
2. Divide by the number of data.

-The **median** is the number in the middle data, which is better than the mean when there is an outlier. To find the median:

1. Order the data from least to greatest.
2. Find the number in the middle.
3. If there are 2 numbers in the middle, add them together and divide by 2.

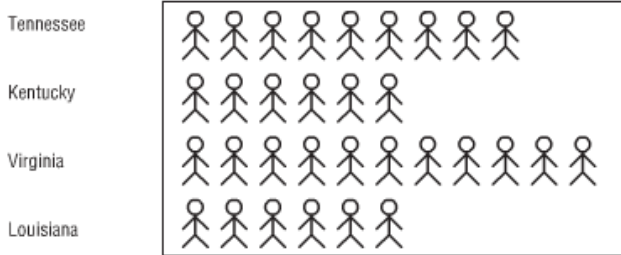
-The **mode** is the piece of data that occurs most often. There can be no mode or more than 1.

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



Mean: _____ Median: _____ Mode: _____

Representatives to U.S. Congress



Mean: _____ Median: _____ Mode: _____

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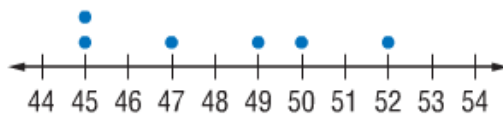
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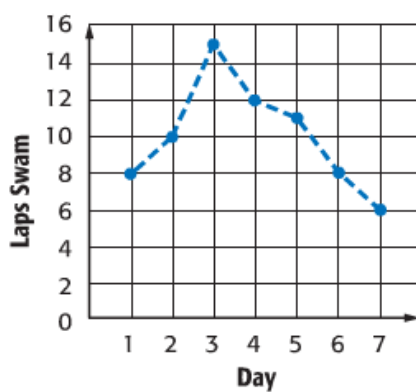
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High Temperatures

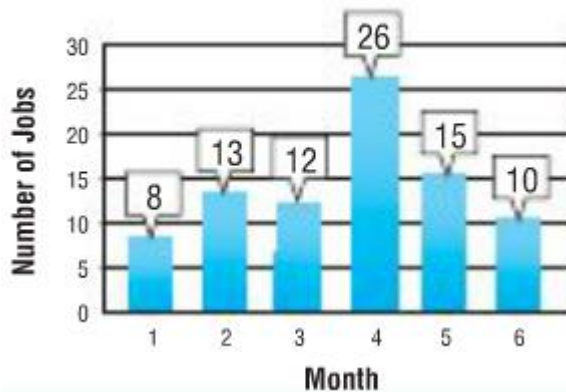


Mean: _____ Median: _____ Mode: _____



Mean: _____ Median: _____ Mode: _____

Yardwork Jobs



Mean: _____ Median: _____ Mode: _____

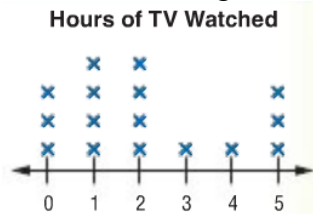
IQR & Range

-The **IQR** (interquartile range) is the difference between the 3rd Quartile and the 1st Quartile

-Remember, the **3rd Quartile** is the median of the upper half of an ordered set of data. The **1st Quartile** is the median of the lower half of an ordered set of

-The **range** is the difference between the maximum and minimum value. The **maximum** is the highest number in a data set. The **minimum** is the least value in a data set.

What is the range of the data?



Find the IQR of the data set.

Step 1: Order the data from least to greatest, then divide it in half.

Step 2: Find the median of the upper half and lower half (3rd Quartile and 1st Quartile).

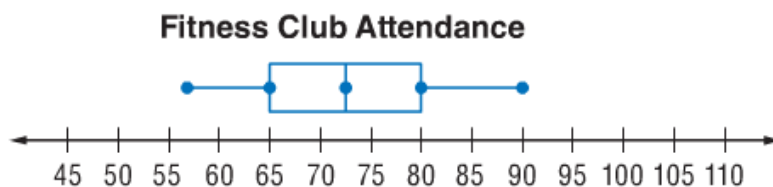
Step 3: Subtract 3rd Quartile – 1st Quartile.

Animal	Speed (mph)
cheetah	70
lion	50
cat	30
elephant	25
mouse	8
spider	1

Find the IQR and Range for the data set.

Month	Antelope, MT
January	21
February	30
March	42
April	58
May	70
June	79

Find the IQR and Range of the data set below.



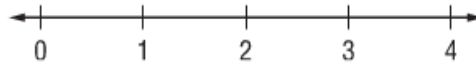
Dot Plots

-A **line plot** (also called a dot plot) is a visual display of distribution of data values where each piece of data is shown using a dot or an "x".

Create a dot plot for the data below.

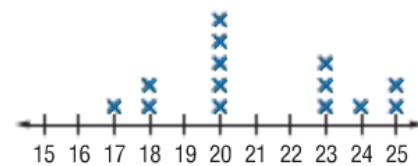
Jasmine asked her class how many pets they had. The results are shown in the table. Make a line plot of the data. Then describe the data presented in the graph.

Number of Pets					
3	2	2	1	3	1
0	1	0	2	3	4
0	1	1	4	2	2
1	2	2	3	0	2



The line plot shows the number of magazines each member of the student council sold. Find the median, mode, range, and any outliers of the data.

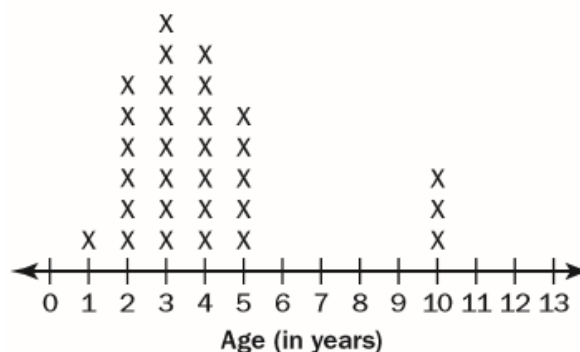
Number of Magazines Sold



Then describe the data using them.

The line plot shows the ages of the children who had their photographs taken at a photography studio during a certain week.

Photographs Taken



Which statement about the children who had their photographs taken does the spread of the data describe?

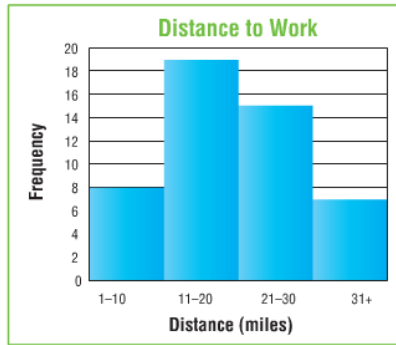
- A. The average age of the children was 3 years.
- B. The most common age of the children was 10 years.
- C. The ages of half of the children were 6 years or less.
- D. The ages of the children ranged from 1 year to 10 years.

Histograms

-A **histogram** is a type of bar graph used to display numerical data that have been organized into equal intervals.

-The **intervals** allow you to see frequency distribution of the data (how many data are in each interval)

How many more people travel 11–20 miles than 1–10 miles to get to work?

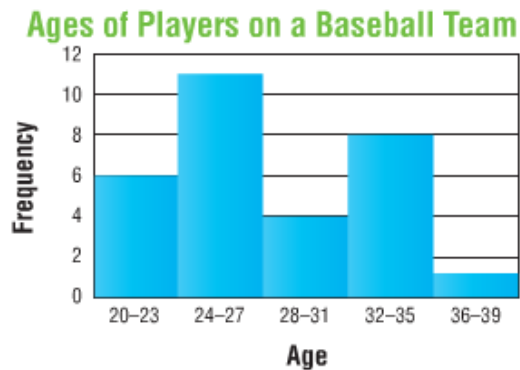


- (A) 11
- (C) 7
- (B) 12
- (D) 4

Short Response Explain why there is not a bar for the interval of 30–44 goals.



Use the histogram to answer the questions below.



Which interval represents the greatest number of ages? _____

Which interval has 4 players? _____

How many players are younger than 28? _____

How many players have ages in the interval 32-39? _____