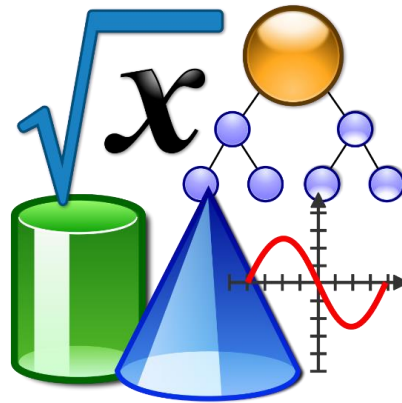


NPS Learning in Place

MATH 7



Name: _____ School: _____ Teacher: _____

April 27 – May 15

Week 1	Comparing and Ordering Rational Numbers
Week 2	Proportional Reasoning
Week 3	Evaluating Expressions

Week 1: 7.1 C Comparing and Ordering Rational numbers:

Definitions:

Rational numbers are any numbers that can be written as decimals.

Steps to compare Rational Numbers

Order from greatest to least (Descending order): $3\frac{3}{4}$, 4.6, $-3\frac{1}{5}$, 380%

a. Change all numbers to decimals: b. Descending order as decimals:

$$3\frac{3}{4} = \boxed{3.75}$$

$$\boxed{4.6}$$

$$-3\frac{1}{5} = \boxed{-3.2}$$

$$380\% = \boxed{3.8}$$

$$-3.2, 3.75, 3.8, 4.6$$

c. Descending order using original rational numbers

$$-3\frac{1}{5}, 3\frac{3}{4}, 380\%, 4.6$$

Example of Comparing Rational Numbers on a Number Line:

1. Write each rational number as a decimal.

$$-\frac{13}{10} = -1.3$$

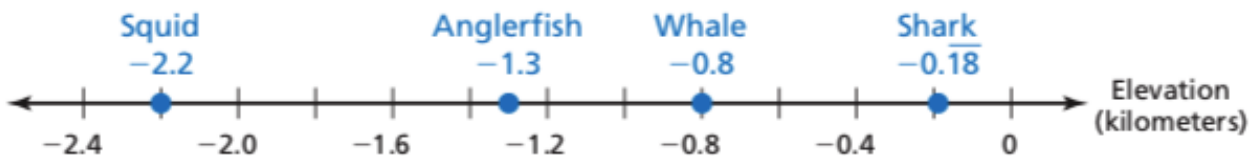
$$-2\frac{1}{5} = -2.2$$

$$-\frac{2}{11} = -0.\overline{18}$$

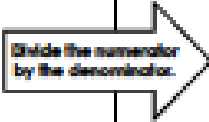
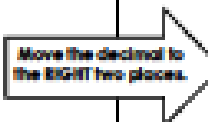

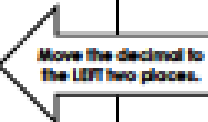
Creature	Elevation (kilometers)
Anglerfish	$-\frac{13}{10}$
Squid	$-2\frac{1}{5}$
Shark	$-\frac{2}{11}$
Whale	-0.8

2.

Then graph each decimal on a number line.



They are now in order from least to greatest. (ascending order)

Main Ideas/Questions	Notes/Examples			
<h2>Converting Fractions, Decimals, & Percents</h2>	Fraction	Decimal	Percent	
	$\frac{3}{5}$			
			18%	
<h2>Examples</h2>	Complete the chart below.			
		Fraction	Decimal	Percent
	1.		0.08	
	2.			24%
	3.	$\frac{7}{12}$		
	4.			4.5%
	5.		0.7	
	6.	$\frac{5}{6}$		
	7.			56%
	8.		0.504	
	9.	$\frac{2}{3}$		
10.		0.12		

When comparing rational numbers use the following symbols:

>	greater than
<	less than
=	equal to

WHEN COMPARING RATIONAL NUMBERS YOU CAN USE A **NUMBER LINE** OR **PLACE VALUE**. WHEN USING A NUMBER LINE, FIRST PLOT EACH RATIONAL NUMBER. THE ONE THAT IS FARTHER TO THE _____ IS GREATER.

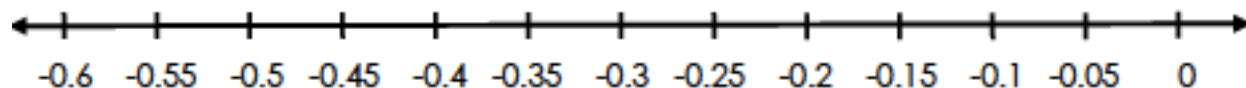
$$\frac{1}{5} \boxed{<} 0.22$$

$$\frac{1}{5} = 0.2 \quad 0.20$$

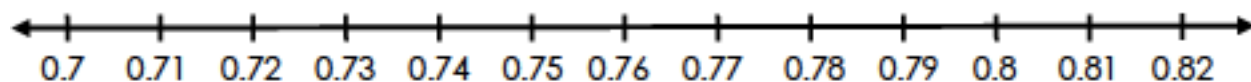
$$0.22$$



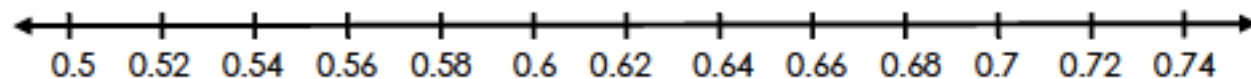
$$-\frac{3}{5} \boxed{\phantom{<}} -0.35$$



$$79\% \boxed{\phantom{<}} \frac{37}{50}$$



$$\frac{12}{20} \boxed{\phantom{<}} \frac{42}{70}$$



Order the rational number from least to Greatest by using a number line and place value:

$$-5, 560\%, 4\frac{1}{3}, -2.8$$

$$-5 = -5.0$$

$$560\% = 5.6$$

$$4\frac{1}{3} = 4.\bar{3}$$

$$-2.8 = -2.8$$

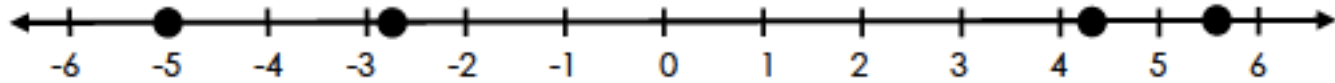
least

$$\begin{array}{r} -5.0 \\ -2.8 \end{array}$$

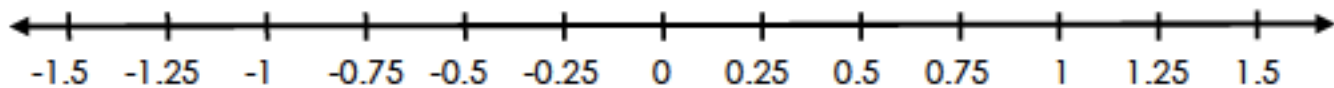
greatest

$$\begin{array}{r} 5.6 \\ 4.\bar{3} \end{array}$$

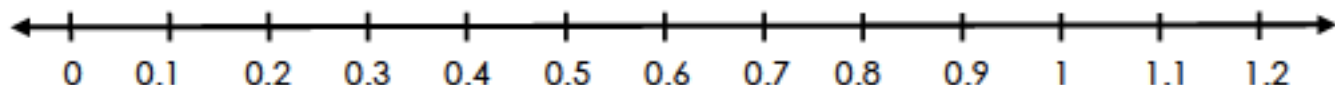
$$-5, -2.8, 4\frac{1}{3}, 560\%$$



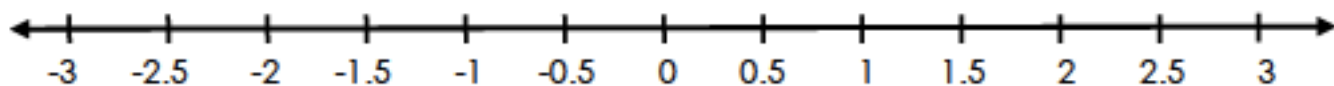
$$120\%, -\frac{1}{4}, -1.25, \frac{7}{8}$$



$$0.1, \frac{1}{5}, 15\%, 0.7$$



$$-2.8, 230\%, -2\frac{3}{4}, 2$$









Compare and order Rational numbers:

Put the following 12 rational number in order from least to greatest.

-126%	$\frac{20}{15}$	1.35	75%
1.25	-185%	-1.4	0
$-\frac{1}{9}$	$\frac{41}{50}$	8.2%	$-\frac{15}{11}$

Write the Answers in order:

<u>Least</u>	1.	2.	3.	4.
				
	5.	6.	7.	8.
				
	9.	10.	11.	Greatest 12.
				

Comparing and Ordering Rational Numbers

Name _____

Fill in each blank with $<$, $>$, or $=$ to make each sentence true.

1. $\frac{2}{3}$ ___ $\frac{5}{8}$

2. 0.03 ___ 0.003

3. 1.1 ___ 1.05

4. $\frac{2}{5}$ ___ 0.44

5. -2.75 ___ -2.5

6. $-3/4$ ___ -0.75

Write the numbers in ascending order.

7. $\frac{3}{8}$, $\frac{1}{4}$, $\frac{7}{8}$

8. 0.44 , $3/8$, 0.5 , $2/5$

9. 0.2 , $4/15$, 0.21 , $1/4$

Write the numbers in descending order.

10. -2.1 , 0.5 , -0.5 , $\frac{5}{100}$

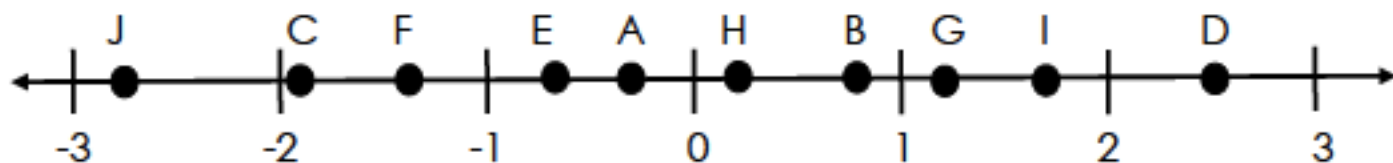
11. -10 , 2 , -0.5 , $\frac{5}{16}$

12. 4^2 , $-\frac{5}{2}$, $-2\frac{1}{3}$, $\frac{1}{16}$

13. 4.12 , -4 , $\frac{9}{2}$, $-\frac{17}{4}$

COMPARE & ORDER RATIONAL NUMBERS

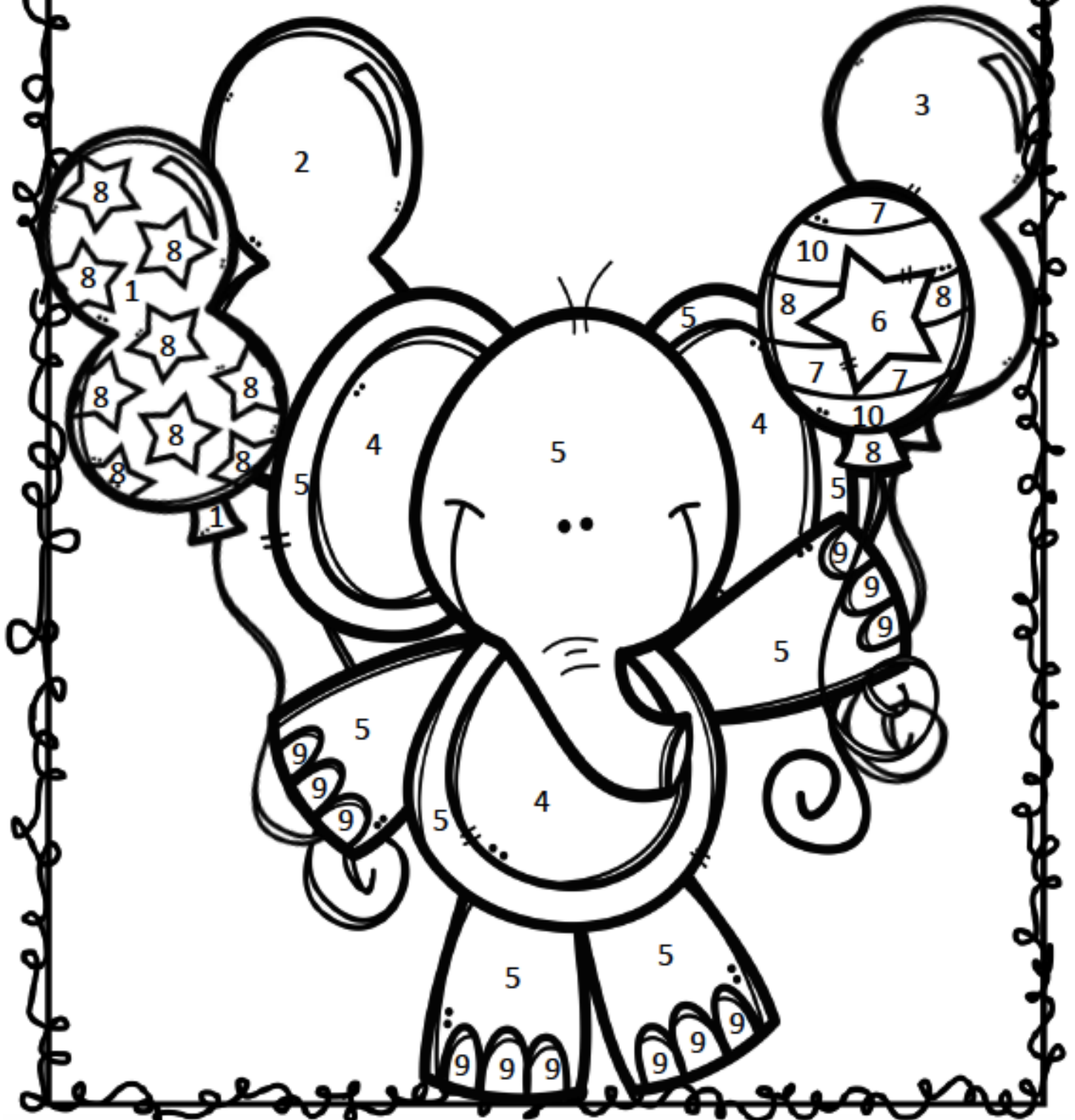
DIRECTIONS: DETERMINE THE CORRECT LETTER ON THE NUMBER LINE FOR EACH VALUE AND CIRCLE THE SOLUTION. FIND THE PROBLEM NUMBER ON THE COLORING PAGE AND SHADE IN THE ENCLOSED REGION WITH THE COLOR ASSIGNED TO THE SOLUTION.



1.	$-\frac{21}{15}$	I GREEN	F PURPLE	D YELLOW	E RED
2.	$\frac{12}{50}$	G DARK BLUE	B ORANGE	H GREEN	A LIGHT BLUE
3.	1.25	G RED	B ORANGE	H DARK BLUE	F YELLOW
4.	$-\frac{11}{4}$	C DARK BLUE	J LIGHT BLUE	D PURPLE	E GREEN
5.	$\frac{15}{6}$	G YELLOW	I GREEN	J RED	D DARK BLUE
6.	$-\frac{1}{3}$	E PURPLE	H LIGHT BLUE	A RED	B GREEN
7.	$-\frac{6}{9}$	F RED	E PURPLE	A GREEN	B ORANGE
8.	$\frac{5}{3}$	I YELLOW	G DARK BLUE	D LIGHT BLUE	B ORANGE
9.	-1.9	I GREEN	B YELLOW	C ORANGE	F RED
10.	$\frac{3}{4}$	I PURPLE	E YELLOW	H DARK BLUE	B GREEN

COMPARE & ORDER RATIONAL NUMBERS

Directions: Use the problems on the previous page to correctly color the coloring page.





Comparing and Ordering Fractions, Decimals, and Percents



Circle the greatest number. Draw a box around the smallest number.

- A** 23% 0.32 $\frac{30}{100}$ **B** 2.1 2% $2\frac{5}{10}$
C 4.6 44% $4\frac{40}{100}$ **D** 9.78 98% $9\frac{7}{10}$

Write the numbers in order from least to greatest.

- E**

0.7
9%
0.9
0.79

F

1.2
1.08
1.5
1.28

G

$\frac{4}{10}$
39%
$\frac{16}{100}$
0.3

Find the decimals that are missing from the number line. Write them beside the matching letters. Use the numbers in the box.

- | | | | |
|------|------|------|------|
| 1.4 | 1.82 | 0.35 | 0.75 |
| 1.25 | 0.9 | 0.2 | 1.7 |



- H** _____ **I** _____ **J** _____ **K** _____
L _____ **M** _____ **N** _____ **O** _____

Week 2: Practical Problem - Proportions

NOTES

Proportions-What are they? How do you set them up? When will you use them?

Proportions

Definition:
States that 2 ratios are equal.
$$\frac{6}{8} = \frac{9}{12}$$

To determine if 2 ratios form a proportion:

$$\frac{3}{5} = \frac{15}{25}$$
cross multiply

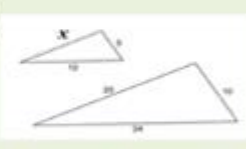
To solve proportions with a variable:

$$\frac{8}{12} = \frac{x}{30}$$
cross multiply

Setting up a proportion:
Put the **like units** across from each other...

$$\frac{\text{inches}}{\text{feet}} = \frac{\text{inches}}{\text{feet}} \quad \frac{\text{gallons}}{\text{miles}} = \frac{\text{gallons}}{\text{miles}}$$

Similar Figures: $\frac{x}{20} = \frac{5}{10}$





Important to remember

There is not just one correct way to set up a proportion. The **key** is to make sure that you put the **“like units”** across from each other.

Example:

Swimming goggles are 12 for \$84.36.
At this rate, how much would it cost for 17 goggles



1 st way	Ratio 1	Ratio 2
	$\frac{12 \text{ goggles}}{\$84.36}$	$= \frac{17 \text{ goggles}}{\$x}$
Answer: \$119.61		

2 nd way	Ratio 1	Ratio 2
	$\frac{\$84.36}{12 \text{ goggles}}$	$= \frac{\$x}{17 \text{ goggles}}$
Answer: \$119.61		

Setting up and solving the proportions.

When setting up a proportion the **key** is to make sure that you put **“like units”** across from each other.

inches → inches

miles → miles

feet → feet

<u>Step 1</u>	<u>Step 2</u>	<u>Step 3</u>	<u>Step 4</u>
Take the information in the first sentence and make that your first ratio .	Take the information in the second sentence and set up the second ratio up to where “like units” are across from each other.	Cross multiply.	Solve the one-step equation

Example: A football player runs 25 yards in 2.5 seconds. How many seconds should it take the same football player to run 100 yards?



$$\frac{25 \text{ yards}}{2.5 \text{ seconds}} = \frac{100 \text{ yards}}{x \text{ seconds}}$$

$$25x = 250$$

$$x = 100$$



name: _____

date: _____



ST. PATRICK'S DAY: Proportions Review

Directions: Solve each problem and circle your answer. Shade in each box with the problem number below using the color assigned to the solution.

1	Solve for x. $\frac{2}{25} = \frac{x}{375}$	75: white	30: light blue	4688: yellow
2	Solve for x. $\frac{70}{4} = \frac{x}{54}$	585: light blue	3086: yellow	945: white
3	Mary mixes 3 cups of blue paint with 4 cups of yellow paint to make green paint. How many cups of green paint would she make if she used 9 cups of blue paint?	21 cups: dark blue	12 cups: green	5 cups: purple
4	If Jack spends \$3.50 on 10 fun size bags of skittles, how much would he spend on 15 bags?	\$5.25: red	\$2.33: orange	\$4.29: yellow
5	Jane made 30 gallons of ice cream in 7.5 hours. How many hours did she work if she made 63 gallons?	25.2 hours: dark blue	13.5 hours: purple	15.75 hours: green
6	If the temperature dropped 8°F in two hours, and the rate the temperature is decreasing stays constant, how long will it take for the temperature to drop 34°F?	75 hours: yellow	85 hours: purple	12 hours: red
7	If Julie can read 150 pages in 4 hours, how long will it take Julie to read 360 pages?	166 hours: yellow	96 hours: light blue	126 hours: white
8	Will plans to take a trip driving across the country. Overall he will travel 1,500 miles. If it takes him 10.5 hours to drive 750 miles, how many MORE hours can he expect to drive?	5.25 hours: orange	2 hours: white	10.5 hours: yellow

1	8	8	8	1	1	1	1	1	2	2
8	8	8	1	1	1	1	2	2	2	2
1	8	8	1	1	1	1	1	2	2	2
1	1	1	4	4	4	4	4	1	1	1
1	1	4	8	8	8	8	8	4	1	1
1	4	8	5	5	5	5	5	8	4	4
4	8	5	3	3	3	3	3	5	8	8
4	2	2	2	6	6	6	6	3	5	5
2	2	2	2	2	7	7	7	6	3	3
7	2	2	2	7	7	7	7	7	6	6



• Scale Drawing Word Problems

The scale of a drawing or model is a ratio relating lengths on the drawing or model to lengths on the actual object.

To solve scale drawing problems we use the scale ratio to write a proportion. Be careful to use the correct units of measure.

Example: The scale of the building plans is 1 in. = 4 ft. A room that is 6 inches long in the drawing is actually how many feet long?

	Scale	Measure	
Drawing (in.)	1	6	$\frac{1}{4} = \frac{6}{L}$ $\frac{1}{4} = \frac{6}{24}$
Building (ft)	4	L	

The length of the room is 24 ft.

Practice:

1. Jamal is making a scale drawing of his property. The drawing is 15 inches long and 12 inches wide. How long and wide is the property if one inch equals 5 feet?

2. Mr. Lloyd wants to build a doll house for his daughter that is proportional to their house. He measured the living room of his house and it is 12 ft by 16 feet. What will be the dimensions of the doll house living room if every foot of the actual house is equal to $\frac{1}{2}$ inch in the doll house?

3. A map is drawn with a scale of 1 inch = 15 miles. Nicole measured the distance to the next town as 3 inches. How many miles does she have to travel to get to the next town?

4. Thomas has a scale drawing for his club house. The measurements are 4 in. by 8 in. What will the actual club house measurements be if the scale factor is 1 in. = 2 ft?

5. Create a scale drawing of a building, room, or yard on the back of this sheet of paper. Specify the scale factor you used for your drawing.

THE PERCENT PROPORTION

THE PERCENT PROPORTION

A percent proportion is an equation where a percent is equal to an equivalent ratio.



$$\frac{\text{part}}{\text{whole}} = \frac{\text{percent}}{100}$$



FIND A PERCENT

What percent of 15 is 12?

$$\frac{\text{part}}{\text{whole}} = \frac{\text{percent}}{100}$$

$$\frac{12}{15} = \frac{x}{100}$$

$$100 \cdot \frac{12}{15} = 100 \cdot \frac{x}{100}$$

$$80 = x$$

➔ 80% of 15 is 12.

FIND A PART

What number is 36% of 50?

$$\frac{\text{part}}{\text{whole}} = \frac{\text{percent}}{100}$$

$$\frac{x}{50} = \frac{36}{100}$$

$$50 \cdot \frac{x}{50} = 50 \cdot \frac{36}{100}$$

$$x = 18$$

➔ 18 is 36% 50.

FIND A WHOLE

150% of what number is 24?

$$\frac{\text{part}}{\text{whole}} = \frac{\text{percent}}{100}$$

$$\frac{24}{x} = \frac{150}{100}$$

$$24 \cdot 100 = x \cdot 150$$

$$2400 = 150x$$

➔ 150% of 16 is 24.

PRACTICE ○○○○○○○○○○○○○○○○○



1 What percent of 35 is 28?



2 What number is 28% of 50?



3 160% of what number is 144?

©Exceeding The CORE

○○○○○○○○ WORD PROBLEM

You score an 80% on your test. You answer 44 questions correctly. How many questions were on the test?



Percent Proportions Word Problems Directions: Set up a basic percent problem. Sometimes you will have to do extra steps to solve the problem. Follow rounding directions.

1) A student earned a grade of 80% on a math test that had 20 problems. How many problems on this test did the student answer correctly? (round to the nearest whole number)

2) There are 36 carpenters in a crew. On a certain day, 29 were present. What percent showed up for work? (round to the nearest tenth)

3) A metal bar weighs 8.15 ounces. 93% of the bar is silver. How many ounces of silver are in the bar? (round to the nearest thousandth)

4) A woman put \$580 into a savings account for one year. The rate of interest on the account was $6\frac{1}{2}\%$. How much was the interest for the year in dollars and cents? (Round to the nearest cent)

5) A student answered 86 problems on a test correctly and received a grade 98%. How many problems were on the test, if all the problems were worth the same number of points? (Round to the nearest whole number)

6) Manuel found a wrecked Trans-Am that he could fix. He bought the car for 65% of the original price of \$7200. What did he pay for the car? (Round to nearest dollar)

7) Pamela bought an electric drill at 85% of the regular price. She paid \$32.89 for the drill. What was the regular price? (Round to the nearest cent)

8) Ben earns \$12,800 a year. About 15% is taken out for taxes. How much is taken out for taxes?

A consumer is a person who purchases goods and services for personal use.

1 Tax

Tax makes total cost increase

$$\frac{\text{tax} \rightarrow \text{part (is)}}{\text{original price} \rightarrow \text{whole (of)}} = \frac{\%}{100}$$

Using math is everyday life!

Ex. Todd purchased a \$50 skateboard with 5% sales tax. What is the amount of the tax?

$$\frac{x}{50} = \frac{5}{100}$$

**To find the total price, ADD the original price and the tax.



- List 3 Examples
- | | Proportions in Consumer Math |
|----|------------------------------|
| 1- | Tax |
| 2- | Tip |
| 3- | Discount |

3 Discount

Discount makes total cost decrease

$$\frac{\text{discount} \rightarrow \text{part (is)}}{\text{original price} \rightarrow \text{whole (of)}} = \frac{\%}{100}$$

Ex. Ms. DiCesare bought \$70 snow pants for 15% off. How much was the discount?

$$\frac{x}{70} = \frac{15}{100}$$

**To find the total price, SUBTRACT the discount from the original price.

2 Tip

Tip makes total cost increase

$$\frac{\text{tip} \rightarrow \text{part (is)}}{\text{original price} \rightarrow \text{whole (of)}} = \frac{\%}{100}$$

Ex. Rachel got her hair done at the salon for \$30 and wanted to tip 20%. How much is the tip?

$$\frac{x}{30} = \frac{20}{100}$$

**To find the total price, ADD the original price and the tip.

Sales Tax, Tips, and Markup

1. **SKATEBOARDS** Inez wants to buy a skateboard but she does not know if she has enough money. The price of the skateboard is \$80 and the sales tax is 7%. What will be the total cost of the skateboard?

2. **HAIRCUT** Josiah went to the local barber to get his hair cut. It cost \$18 for the haircut. Josiah tipped the barber 15%. What was the total cost of the haircut including the tip?

3. **MEAL** Madeline took 3 friends out for dinner. The cost of the meals was \$46.50. She left a 20% tip. What was the total cost including the tip?

4. **COMPUTERS** Andrea ordered a computer on the Internet. The computer cost \$1,399 plus $6\frac{1}{2}\%$ sales tax. What was the total amount Andrea paid for her computer?

5. **MAGAZINES** Ivan bought these two magazines. If the sales tax was 6.75%, what was the total amount that he paid for the magazines?



\$4.95



\$4.95

6. **CATERED DINNER** The Striton family had a meal catered for a wedding rehearsal dinner. The cost of the dinner was \$476. There was a 5% sales tax and they left a 15% tip. What was the total cost including the sales tax and the tip?

Lesson 7 Problem-Solving Practice

Discount

1. **PRETZELS** The Spanish club sold hot pretzels as a fundraiser. The pretzels normally sold for \$2.00, but near the end of the sale the price was reduced by 25%. What was the new price for a hot pretzel?

2. **CELL PHONES** Nathan is buying a cell phone for his business. The regular price of the cell phone is \$179. If he buys the phone in the next 2 weeks, he will get a 20% discount. What will be the sale price if he buys the phone tomorrow?



3. **ALARM CLOCK** Dominic bought a new alarm clock that was on sale for \$18.75. If this price represents a 30% discount from the original price, what is the original price to the nearest cent?

4. **FISHING ROD** Malachi bought a new fishing rod. The regular price of the fishing rod was \$125.99. He bought it on sale with a 15% discount. Sales tax of 3% is applied to the discounted total. What was the sale price with tax of Malachi's fishing rod to the nearest cent?

5. **JEWELRY** A jewelry store is having a 50% off sale for all necklaces. During this sale, what is the cost of a necklace that regularly costs \$49.98?

6. **COSMETICS** Jaylynn was buying new mascara. She bought it on sale for \$5.56. If the price represents a 20% discount from the original price, what is the original price to the nearest cent?

Directions: Complete the problems on a separate sheet of paper. After you complete the questions, look for the path that has the correct answer on it and move through the arrow to the next question. Keep working the problems from the Start space to the Finish space. If you make a mistake you will have to go back to the mistake and continue from there.

©MATH IDEA GALAXY

Start Tax, Tips, and Discounts Maze 3

Name _____

Start

Find the total price of a \$3.29 bag of chips after 7% tax. $\$0.23$

What is the price of a \$600 bike 15% off? $\$510.00$

What is the price of a \$35 taxi ride plus 15% tip? $\$40.25$

What is 9% sales tax on a \$67 bill? $\$73.03$

What is 12% sales tax on a \$4.25 6-pack of soda? $\$4.76$

What is an 18% tip on a \$75 meal? $\$4.17$

How much did Benji earn if he got \$50 for mowing the lawn plus a 10% tip? $\$28$

How much did Joe earn caddying if he got \$35 plus a 20% tip? $\$42.00$

Find the total price of a \$45 baseball cap with 11% tax. $\$49.95$

How much of a discount is 30% off a \$150 item? $\$50$

What is the total of a \$20 comic book with 9% sales tax? $\$21.80$

Find the total of a \$60 meal with 15% tip and 8% tax. $\$73.80$

What is 17% sales tax on a \$4.25 6-pack of soda? $\$4.76$

What is an 18% tip on a \$75 meal? $\$4.17$

How much did Benji earn if he got \$50 for mowing the lawn plus a 10% tip? $\$28$

How much did Joe earn caddying if he got \$35 plus a 20% tip? $\$42.00$

Find the total price of a \$45 baseball cap with 11% tax. $\$49.95$

How much of a discount is 30% off a \$150 item? $\$50$

What is the total of a \$20 comic book with 9% sales tax? $\$21.80$

Find the total of a \$60 meal with 15% tip and 8% tax. $\$73.80$

How much did Jennie earn if she got \$40 for babysitting, plus a 15% tip? $\$46.00$

What is the price of a \$12 game 30% off? $\$8.40$

How much is a \$39 soccer ball at 35% off? $\$25.22$

Finish

Week 3

7.11 The student will evaluate algebraic expressions for given replacement values of the variables

Definition

Algebraic expressions contain at least one variable and at least one operation. For example, the expression $N+2$ represents the sum of an unknown number and 2



Order of operations:

P – First do anything in **Parenthesis**
E – Next calculate any **Exponents**
M and **D** – Next, calculate **Multiplication** and **Division** (left to right)
A and **S** – Finally, calculate **Addition** and **Subtraction** (left to right)

How to Evaluate:

Evaluate $3x - 14$ when $x = 5$.

a.

$$\begin{aligned} 3x - 14 &= 3(5) - 14 && \text{Substitute 5 for } x. \\ &= 15 - 14 && \text{Using order of operations, multiply 3 and 5.} \\ &= 1 && \text{Subtract 14 from 15.} \end{aligned}$$

Evaluate $z^2 + 8.5$ when $z = 2$.

b.

$$\begin{aligned} z^2 + 8.5 &= (2)^2 + 8.5 && \text{Substitute 2 for } z. \\ &= 4 + 8.5 && \text{Using order of operations, evaluate } 2^2. \\ &= 12.5 && \text{Add 4 and 8.5.} \end{aligned}$$

Evaluate $x - y$ if $x = 64$ and $y = 27$.

c.

$$\begin{aligned} x - y &= 64 - 27 && \text{Replace } x \text{ with 64 and } y \text{ with 27.} \\ &= 37 && \text{Subtract 27 from 64.} \end{aligned}$$

Evaluating Expression for Given Replacement Values

To evaluate an algebraic expression, replace the variable or variables with known values and then use the order of operations to solve.

Evaluate each expression if: $x = 5$ and $y = 6$.

$$x + y - 9$$

$$3x + 2y$$

Replace: _____

Replace: _____

Evaluate: _____

Evaluate: _____

Evaluate each expression if: $k = 2$, $m = 7$, $n = 4$.

1) $6m - 3k$

2) $\frac{mn}{2}$

3) $m + |2m - k|$

Evaluate each expression if: $a = 5$, $b = 3$, and $c = 4$.

4) $6a - 4b$

5) $\frac{(c + a)}{b}$

6) $c + (a^2 + b) - 15$

Evaluate each expression if: $x = 5$ and $y = 8$.

7) $5x + 2x - y$

8) $\frac{(y - x) + x}{x}$

9) $(y^2 + x) - x$

Name: _____

Date: _____

Evaluating Algebraic Expressions

Directions: Solve each expression using substitution and circle the answer. Find the problem number on the fill in the blank page and write the word assigned to the solution. $j = 3$ $k = 4$ $L = 5$ $m = 6$

1. $m^2 - k$	32: 1732	8: 1725	16: 1736	40: 1728
2. $(k + 12) \div 4$	2: Massachusetts	4: Virginia	7: Florida	8: Vermont
3. $2L^2 + 3j$	39: Betty	109: Catherine	159: Anne	59: Martha
4. $15 \div (5 + m^2 - 1)$	0.9375: Monticello	0.375: Mount Vernon	38: Poplar Forest	14: The White House
5. $j + k \cdot L - m$	29: horses	-7: dogs	17: children	-29: friends
6. $(3m - j^2) + 10$	19: two	22: eight	37: five	40: three
7. $mL - k^2$	22: 1777	57: 1792	49: 1785	14: 1789
8. $3(2m - 5)$	63: second	31: third	21: first	73: fourth
9. $L + km \div j$	9.6: one	17: three	13: two	20.3: two and a half
10. $j^2(10 - m)$	84: blood	24: skin	36: throat	12: kidney

Name: _____

Date: _____

Evaluating Algebraic EXPRESSIONS

George Washington was born in _____ in the state of

1

_____. With his wife _____ by his side,

2

3

George took care of the land around _____.

4

Although he never had _____ of his own, his wife,

5

a former widow, had _____. In _____,

6

7

George Washington was unanimously voted to become the

_____ President of the United States. He fulfilled

8

_____ terms in this position before settling down at his

9

family home. In 1799, George Washington died as the result of a

_____ infections.

10

Evaluate each expression if $x = 6$, $y = 12$, and $z = 4$.

1) $\frac{2x+y}{z}$

2) $xy - z^2$

3) $\frac{2y-2}{2}$

4) $5x + |y - z|$

5) $z + 3^2$

6) $2y - |x + z|$

Evaluate each expression if $m = 7$, $k = 2$, and $n = 4$

7) $2m - 5k$

8) $\frac{kn}{n}$

9) $n + (k + 5m)$

10) $5n - |k + n|$

11) $m + k^2$

12) $\frac{3n+k}{k}$

Evaluate each expression if $x = 6$, $y = 3$, and $z = 1$

13) $3x + 7y$

14) $\frac{xy}{3}$

15) $x - (z + y)$

16) $x + z^2$

17) $2x - |z + y|$

18) $\frac{3x+y}{y}$

Name: _____

Date: _____

Evaluating Algebraic Expressions

Directions: Solve each expression and circle the correct answer. Find the problem number on the coloring page and shade in the enclosed region with the color assigned to the solution.

$$w = 10 \quad x = 8 \quad y = 6 \quad z = 4$$

1. $-xy$	-86: green	-48: red	-2: blue	-14: purple
2. $z^2 + 5$	13: red	9: orange	21: brown	81: yellow
3. $(w - 4)^2 - 16$	20: orange	68: purple	-4: yellow	80: green
4. $3y - w$	-1: blue	8: green	16: brown	24: yellow
5. $2x^2 - 75$	-43: pink	437: black	-11: brown	53: gray
6. $60 \div (w + x - y)$	10: blue	8: red	5: orange	2.5: purple
7. $yz + x$	8: red	5: yellow	16: green	3: blue
8. $w^2 - 3z^2$	-4: blue	52: green	-44: orange	44: purple
9. $3z^2 - 20$	28: purple	4: blue	124: green	-1: red
10. $\frac{5w+4}{y}$	12: green	3: purple	15: red	9: blue

Algebraic Expressions: Number Puzzle


Evaluate each expression for the given value of the variable and place the answer in its correct location in the puzzle. Place each digit in its own box. 1 across has been done as an example.

		1.	2.		3.	4.			
		1	6						
5.			6.	7.		8.			
				9.				10.	
11.	12.		13.			14.			
	15.				16.		17.		18.
19.							20.	21.	
22.	23.			24.	25.				
	26.				27.				

ACROSS	DOWN
1. $x + 7$ for $x = 9$	2. $2a + 7$ for $a = 30$
3. $3(5 + b)$ for $b = 8$	4. $12d$ for $d = 8$
6. $2y + 8$ for $y = 35$	5. $6t + 7$ for $t = 100$
8. $2a - 15$ for $a = 40$	7. $3m + 25$ for $m = 20$
9. $100 \div p$ for $p = 2$	12. $84 \div a$ for $a = 2$
10. $7r - 3$ for $r = 10$	13. $2(x - 5)$ for $x = 100$
11. $3g + 8$ for $g = 22$	14. $75 - 2b$ for $b = 8$
15. $25x + 9$ for $x = 8$	17. $2(4 + n) - 2$ for $n = 3$
16. $50c - 9$ for $c = 10$	18. $105 \div y$ for $y = 3$
20. $8(k - 5) - 25$ for $k = 40$	19. $3(b - 8) + 7$ for $b = 13$
22. $4(a + 1) - 16$ for $a = 9$	21. $9(c - 2) - 3$ for $c = 8$
24. $4t - 15$ for $t = 7$	23. $16 + 2(p + 5)$ for $p = 11$
26. $y(9 + 5)$ for $y = 6$	25. $m \div 6$ for $m = 192$
27. $3(5 + q) - 2$ for $n = 3$	

What did the snow plow say about the blizzard?

Evaluate.

S. $4x + 3$ if $x = 9$	P. $7y + 5$ if $y = 3$	T. $8 + 4x$ if $x = 7$
B. $3y - 5$ if $y = 8$	O. $6x - 4 + x$ if $x = 5$	M. $11y + 5 - 2y$ if $y = 2$
E. $5x + 9x$ if $x = 3$	I. $9y - y$ if $y = 6$	W. $2x - x + 3$ if $x = 8$
N. $9y - 4y + 3$ if $y = 7$	O. $7x + 4 - 3x$ if $x = 4$	S. $4y + 8 - 2y$ if $y = 5$
R. $7 - x + 2x$ if $x = 6$		L. $18 - 6y + 9y$ if $y = 2$

48	36	39	18	38	31	11	26	13	20	19	24	42	23

1. Create a shape to represent the number 1. Show $3(1)$ and $4(2)$.

Let ♥ represent 1.

$$3(1) = 3 \cdot \heartsuit \text{ or } \heartsuit\heartsuit\heartsuit$$

$$4(2) = 4 \cdot \heartsuit\heartsuit \text{ or } \heartsuit\heartsuit\heartsuit\heartsuit\heartsuit\heartsuit\heartsuit\heartsuit\heartsuit\heartsuit$$

2. Create a shape to represent x . Show $3x$, $4x$, and $2x$.
3. Show $3x$ from Exercise 2. Replace each x by 4. Write the value.
4. Create a shape to represent y . Show $3x$ from Exercise 2. Then show $3x + 2y$. Replace each x by 5 and each y by 4. Find the value.
5. Create a shape to represent x . Show $2x + 5x$. Replace x by 3. Find the value.
6. List the steps you would use to evaluate, or find the value of, an expression.
7. Use the steps you listed in Exercise 6 to see whether you get the correct value for each expression. (Replace each x by 5 and each y by 3.)

Expression	a. $8x + 3y$	b. $5x^2 + 2y$	c. $3x^2 + 4y^2$	d. $3(2x + y)$
Value	49	131	111	39

a.

b.

c.

d.