Name _____ Date _____

Lesson 1: Percent

Exit Ticket

1. Fill in the chart converting between fractions, decimals and percents. Show work in the space provided.

Fraction	Decimal	Percent
$\frac{1}{8}$		
	1.125	
		$\frac{2}{5}\%$

2. Using the values from the chart in Problem 1, which is the least and which is the greatest? Explain how you arrived at your answers.

Exercise 1 Cards

I have the equivalent value 0.11. Who has the card equivalent to 350%?	I have the equivalent value 3.5. Who has the card equivalent to $\frac{3}{8}$?	I have the equivalent value 37.5%. Who has the card equivalent to $\frac{\frac{1}{4}}{100}$?	I have the equivalent value 0.0025%. Who has the card equivalent to 5?	I have the equivalent value 500%. Who has the card equivalent to $1\frac{2}{5}$?
I have the equivalent value $.4\%$. Who has the card equivalent to $\frac{1}{5}\%$?	I have the equivalent value 0.002. Who has the card equivalent to 100%?	I have the equivalent value 1. Who has the card equivalent to $\frac{210}{100}$?	I have the equivalent value 210%. Who has the card equivalent to $\frac{\frac{3}{4}}{100}$?	I have the equivalent value 0.75%. Who has the card equivalent to $35\frac{1}{2}\%$?
I have the equivalent value 0.355. Who has the card equivalent to 2%?	I have the equivalent value $\frac{1}{50}$. Who has the card equivalent to 0.5%?	I have the equivalent value $\frac{1}{200}$. Who has the card equivalent to 0.37?	I have the equivalent value 37%. Who has the card equivalent to 90%?	I have the equivalent $\frac{9}{10}$. Who has the card equivalent to $\frac{\frac{1}{10}}{100}$?
I have the equivalent value 0.10%. Who has the card equivalent to $\frac{1}{2}$?	I have the equivalent value 50%. Who has the card equivalent to 300?	I have the equivalent value $30,000\%$. Who has the card equivalent to $\frac{3}{5}\%$?	I have the equivalent value $\frac{3}{500}$. Who has the card equivalent to 75%?	I have the equivalent value $\frac{3}{4}$. Who has the card equivalent to $\frac{180}{100}$?
I have the equivalent value 180%. Who has the card equivalent to 5%?	I have the equivalent value 0.05. Who has the card equivalent to $\frac{1}{100}\%$?	I have the equivalent value $\frac{1}{10{,}000}$. Who has the card equivalent to 1.1?	I have the equivalent value 110%. Who has the card equivalent to 250%?	I have the equivalent value 2.5. Who has the card equivalent to 18%?
I have the equivalent value $\frac{9}{50}$. Who has the card equivalent to $\frac{15}{4}$?	I have the equivalent value 375%. Who has the card equivalent to 0.06?	I have the equivalent value 6%. Who has the card equivalent to 0.4?	I have the equivalent value $\%$. Who has the card equivalent to 1.5%?	I have the equivalent value $\frac{3}{200}$. Who has the card equivalent to 11%?

Sprint: Fractions, Decimals, and Percents – Round 1

Number Correct: _____

Directions: Write each number in the alternate form indicated.

1.	$\frac{20}{100}$ as a percent	
2.	$\frac{40}{100}$ as a percent	
3.	$\frac{80}{100}$ as a percent	
4.	$\frac{85}{100}$ as a percent	
5.	$\frac{95}{100}$ as a percent	
6.	$\frac{100}{100}$ as a percent	
7.	$\frac{10}{10}$ as a percent	
8.	$\frac{1}{1}$ as a percent	
9.	$\frac{1}{10}$ as a percent	
10.	$\frac{2}{10}$ as a percent	
11.	$\frac{4}{10}$ as a percent	
12.	75% as a decimal	
13.	25% as a decimal	
14.	15% as a decimal	
15.	10% as a decimal	
16.	5% as a decimal	
17.	30% as a fraction	
18.	60% as a fraction	
19.	90% as a fraction	
20.	50% as a fraction	
21.	25% as a fraction	
22.	20% as a fraction	

23.	$\frac{9}{10}$ as a percent	
24.	$\frac{9}{20}$ as a percent	
25.	$\frac{9}{25}$ as a percent	
26.	$\frac{9}{50}$ as a percent	
27.	$\frac{9}{75}$ as a percent	
28.	$\frac{18}{75}$ as a percent	
29.	$\frac{36}{75}$ as a percent	
30.	96% as a fraction	
31.	92% as a fraction	
32.	88% as a fraction	
33.	44% as a fraction	
34.	22% as a fraction	
35.	3% as a decimal	
36.	30% as a decimal	
37.	33% as a decimal	
38.	33.3% as a decimal	
39.	3.3% as a decimal	
40.	0.3% as a decimal	
41.	$\frac{1}{3}$ as a percent	
42.	$\frac{1}{9}$ as a percent	
43.	$\frac{2}{9}$ as a percent	
44.	$\frac{8}{9}$ as a percent	

Sprint: Fractions, Decimals, and Percents – Round 2

Number Correct: _____

Improvement: _____

Directions: Write each number in the alternate form indicated.

1.	$\frac{30}{100}$ as a percent	
2.	$\frac{60}{100}$ as a percent	
3.	$\frac{70}{100}$ as a percent	
4.	$\frac{75}{100}$ as a percent	
5.	$\frac{90}{100}$ as a percent	
6.	$\frac{50}{100}$ as a percent	
7.	$\frac{5}{10}$ as a percent	
8.	$\frac{1}{2}$ as a percent	
9.	$\frac{1}{4}$ as a percent	
10.	$\frac{1}{8}$ as a percent	
11.	$\frac{3}{8}$ as a percent	
12.	60% as a decimal	
13.	45% as a decimal	
14.	30% as a decimal	
15.	6% as a decimal	
16.	3% as a decimal	
17.	3% as a fraction	
18.	6% as a fraction	
19.	60% as a fraction	
20.	30% as a fraction	
21.	45% as a fraction	
22.	15% as a fraction	
23.	$\frac{6}{10}$ as a percent	
24.	$\frac{6}{20}$ as a percent	
25.	$\frac{6}{25}$ as a percent	
26.	$\frac{6}{50}$ as a percent	
27.	$\frac{6}{75}$ as a percent	
28.	$\frac{12}{75}$ as a percent	
29.	$\frac{24}{75}$ as a percent	
30.	64% as a fraction	
31.	60% as a fraction	
32.	56% as a fraction	
33.	28% as a fraction	
34.	14% as a fraction	
35.	9% as a decimal	
36.	90% as a decimal	
37.	99% as a decimal	
38.	99.9% as a decimal	
39.	9.9% as a decimal	
40.	0.9% as a decimal	
41.	$\frac{4}{9}$ as a percent	
42.	$\frac{5}{9}$ as a percent	
43.	$\frac{2}{3}$ as a percent	
44.	$\frac{1}{6}$ as a percent	

Name _____ Date _____

Lesson 2: Part of a Whole as Percent

Exit Ticket

1. On a recent survey, 60% of those surveyed indicated that they preferred walking to running.
   a. If 540 people preferred walking, how many people were surveyed?

   b. How many people preferred running?

2. Which is greater: 25% of 15 or 15% of 25? Explain your reasoning using algebraic representations or visual models.

Name _____ Date _____

Lesson 3: Comparing Quantities with Percent

Exit Ticket

Solve each problem below using at least two different approaches.

1. Jenny's great grandmother is 90 years old. Jenny is 12 years old. What percent of Jenny's great grandmother's age is Jenny's age?

2. Jenny's mom is 36 years old. What percent of Jenny's mother's age is Jenny's great grandmother's age?

Sprint: Part, Whole, or Percent – Round 1

Number Correct: _____

Directions: Find each missing value.

1.	1% of 100 is?	
2.	2% of 100 is?	
3.	3% of 100 is?	
4.	4% of 100 is?	
5.	5% of 100 is?	
6.	9% of 100 is?	
7.	10% of 100 is?	
8.	10% of 200 is?	
9.	10% of 300 is?	
10.	10% of 500 is?	
11.	10% of 550 is?	
12.	10% of 570 is?	
13.	10% of 470 is?	
14.	10% of 170 is?	
15.	10% of 70 is?	
16.	10% of 40 is?	
17.	10% of 20 is?	
18.	10% of 25 is?	
19.	10% of 35 is?	
20.	10% of 36 is?	
21.	10% of 37 is?	
22.	10% of 37.5 is?	

23.	10% of 22 is?	
24.	20% of 22 is?	
25.	30% of 22 is?	
26.	50% of 22 is?	
27.	25% of 22 is?	
28.	75% of 22 is?	
29.	80% of 22 is?	
30.	85% of 22 is?	
31.	90% of 22 is?	
32.	95% of 22 is?	
33.	5% of 22 is?	
34.	15% of 80 is?	
35.	15% of 60 is?	
36.	15% of 40 is?	
37.	30% of 40 is?	
38.	30% of 70 is?	
39.	30% of 60 is?	
40.	45% of 80 is?	
41.	45% of 120 is?	
42.	120% of 40 is?	
43.	120% of 50 is?	
44.	120% of 55 is?	

Sprint: Part, Whole, or Percent – Round 2

Number Correct: _____

Directions: Find each missing value.

Improvement: _____

1.	20% of 100 is?	
2.	21% of 100 is?	
3.	22% of 100 is?	
4.	23% of 100 is?	
5.	25% of 100 is?	
6.	25% of 200 is?	
7.	25% of 300 is?	
8.	25% of 400 is?	
9.	25% of 4000 is?	
10.	50% of 4000 is?	
11.	10% of 4000 is?	
12.	10% of 4700 is?	
13.	10% of 4600 is?	
14.	10% of 4630 is?	
15.	10% of 463 is?	
16.	10% of 46.3 is?	
17.	10% of 18 is?	
18.	10% of 24 is?	
19.	10% of 3.63 is?	
20.	10% of 0.336 is?	
21.	10% of 37 is?	
22.	10% of 37.5 is?	

23.	10% of 4 is?	
24.	20% of 4 is?	
25.	30% of 4 is?	
26.	50% of 4 is?	
27.	25% of 4 is?	
28.	75% of 4 is?	
29.	80% of 4 is?	
30.	85% of 4 is?	
31.	90% of 4 is?	
32.	95% of 4 is?	
33.	5% of 4 is?	
34.	15% of 40 is?	
35.	15% of 30 is?	
36.	15% of 20 is?	
37.	30% of 20 is?	
38.	30% of 50 is?	
39.	30% of 90 is?	
40.	45% of 90 is?	
41.	90% of 120 is?	
42.	125% of 40 is?	
43.	125% of 50 is?	
44.	120% of 60 is?	

Name _____ Date _____

Lesson 4: Percent Increase and Decrease

Exit Ticket

Erin wants to raise her math grade to a 95 to improve her chances of winning a math scholarship. Her math average for the last marking period was an 81. Erin decides she must raise her math average by 15% to meet her goal. Do you agree? Why or why not? Support your written answer by showing your math work.

Name _____ Date _____

Lesson 5: Finding One Hundred Percent Given Another Percent

Exit Ticket

1. A tank that is 40% full contains 648 gallons of water. Use a double number line to find the capacity of the water tank.

2. Loretta picks apples for her grandfather to make apple cider. She brings him her cart with 420 apples. Her grandfather smiles at her and says, "Thank you Loretta. That is 35% of the apples that we need."

   Use mental math to find how many apples Loretta's grandfather needs. Describe your method.

Name _____ Date _____

Lesson 6: Fluency with Percents

Exit Ticket

1. Parker was able to pay for 44% of his college tuition with his scholarship. The remaining $\$10{,}054.52$ he paid for with a student loan. What was the cost of Parker's tuition?

2. Two bags contain marbles. Bag A contains 112 marbles and Bag B contains 140 marbles. What percent fewer marbles does Bag A have than Bag B?

3. There are 42 students on a large bus and the rest are on a smaller bus. If 40% of the students are on the smaller bus, how many total students are on the two buses?

Sprint: Percent More or Less – Round 1

Number Correct: _____

Directions: Find each missing value.

1.	100% of 10 is __?	
2.	10% of 10 is __?	
3.	10% more than 10 is __?	
4.	11 is __ % more than 10?	
5.	11 is __% of 10?	
6.	11 is 10% more than __ ?	
7.	110% of 10 is __?	
8.	10% less than 10 *is* __?	
9.	9 is __% less than 10?	
10.	9 is __% of 10?	
11.	9 is 10% less than __?	
12.	10% of 50 is __?	
13.	10% more than 50 is __?	
14.	55 is __% of 50?	
15.	55 is __% more than 50?	
16.	55 is 10% more than __?	
17.	110% of 50 is __?	
18.	10% less than 50 is __?	
19.	45 is __% of 50?	
20.	45 is __% less than 50?	
21.	45 is 10% less than __?	
22.	40 is __% less than 50?	

23.	15% of 80 is __?	
24.	15% more than 80 is __?	
25.	What is 115% of 80?	
26.	92 is 115% of __?	
27.	92 is __% more than 80?	
28.	115% of 80 is __?	
29.	What is 15% less than 80?	
30.	What % of 80 is 68?	
31.	What % less than 80 is 68?	
32.	What % less than 80 is 56?	
33.	What % of 80 is 56?	
34.	What is 20% more than 50?	
35.	What is 30% more than 50?	
36.	What is 140% of 50?	
37.	What % of 50 is 85?	
38.	What % more than 50 is 85?	
39.	What % less than 50 is 35?	
40.	What % of 50 is 35?	
41.	1 is what % of 50?	
42.	6 is what % of 50?	
43.	24% of 50 is?	
44.	24% more than 50 is?	

Sprint: Percent More or Less – Round 2

Number Correct: _____

Directions: Find each missing value.

Improvement: _____

1.	100% of 20 is __?	
2.	10% of 20 is __?	
3.	10% more than 20 is __?	
4.	22 is __ % more than 20?	
5.	22 is __% of 20?	
6.	22 is 10% more than __ ?	
7.	110% of 20 is __?	
8.	10% less than 20 is __?	
9.	18 is __% less than 20?	
10.	18 is __% of 20?	
11.	18 is 10% less than __?	
12.	10% of 200 is __?	
13.	10% more than 200 is __?	
14.	220 is __% of 200?	
15.	220 is __% more than 200?	
16.	220 is 10% more than __?	
17.	110% of 200 is __?	
18.	10% less than 200 is __?	
19.	180 is __% of 200?	
20.	180 is __% less than 200?	
21.	180 is 10% less than __?	
22.	160 is __% less than 200?	

23.	15% of 60 is __?	
24.	15% more than 60 is __?	
25.	What is 115% of 60?	
26.	69 is 115% of __?	
27.	69 is __% more than 60?	
28.	115% of 60 is __?	
29.	What is 15% less than 60?	
30.	What % of 60 is 51?	
31.	What % less than 60 is 51?	
32.	What % less than 60 is 42?	
33.	What % of 60 is 42?	
34.	What is 20% more than 80?	
35.	What is 30% more than 80?	
36.	What is 140% of 80?	
37.	What % of 80 is 104?	
38.	What % more than 80 is 104?	
39.	What % less than 80 is 56?	
40.	What % of 80 is 56?	
41.	1 is what % of 200?	
42.	6 is what % of 200?	
43.	24% of 200 is?	
44.	24% more than 200 is?	

Name _____ Date _____

Lesson 7: Markup and Markdown Problems

Exit Ticket

1. A store that sells skis buys them from a manufacturer at a wholesale price of $\$57$. The store's markup rate is 50%.
   a. What price does the store charge its customers for the skis?

   b. What percent of the original price is the final price? Show your work.

   c. What is the percent increase from the original price to the final price?

Name _____ Date _____

Lesson 8: Percent Error Problems

Exit Ticket

1. The veterinarian weighed Oliver's new puppy, Boaz, on a defective scale. He weighed 36 pounds. However, Boaz weighs exactly 34.5 pounds. What is the percent of error in measurement of the defective scale to the nearest tenth?

2. Use the π key on a scientific or graphing calculator to compute the percent of error of the approximation of pi, 3.14, to the value π. Show your steps, and round your answer to the nearest hundredth of a percent.

3. Connor and Angie helped take attendance during their school's practice fire drill. If the actual count was between 77 and 89, inclusive, what is the most the absolute error could be? What is the most the percent error could be? Round your answer to the nearest tenth of a percent.

Name _____ Date _____

Lesson 9: Problem Solving When the Percent Changes

Exit Ticket

Terrence and Lee were selling magazines for a charity. In the first week, Terrance sold 30% more than Lee. In the second week, Terrance sold 8 magazines, but Lee did not sell any. If Terrance sold 50% more than Lee by the end of the second week, how many magazines did Lee sell?

Choose any model to solve the problem. Show your work to justify your answer.

Name _____ Date _____

Lesson 10: Simple Interest

Exit Ticket

1. Erica's parents gave her $500 for her high school graduation. She put the money into a savings account that earned 7.5% annual interest. She left the money in the account for nine months before she withdrew it. How much interest did the account earn if interest is paid monthly?

2. If she would have left the money in the account for another nine months before withdrawing, how much interest would the account have earned?

3. About how many years and months would she have to leave the money in the account if she wants to reach her goal of saving $750?

Sprint: Fractional Percents – Round 1

Number Correct: _____

Directions: Find the part that corresponds with each percent.

1.	1% of 100	
2.	1% of 200	
3.	1% of 400	
4.	1% of 800	
5.	1% of 1,600	
6.	1% of 3,200	
7.	1% of 5,000	
8.	1% of 10,000	
9.	1% of 20,000	
10.	1% of 40,000	
11.	1% of 80,000	
12.	$\frac{1}{2}$% of 100	
13.	$\frac{1}{2}$% of 200	
14.	$\frac{1}{2}$% of 400	
15.	$\frac{1}{2}$% of 800	
16.	$\frac{1}{2}$% of 1,600	
17.	$\frac{1}{2}$% of 3,200	
18.	$\frac{1}{2}$% of 5,000	
19.	$\frac{1}{2}$% of 10,000	
20.	$\frac{1}{2}$% of 20,000	
21.	$\frac{1}{2}$% of 40,000	
22.	$\frac{1}{2}$% of 80,000	

23.	$\frac{1}{4}$% of 100	
24.	$\frac{1}{4}$% of 200	
25.	$\frac{1}{4}$% of 400	
26.	$\frac{1}{4}$% of 800	
27.	$\frac{1}{4}$% of 1,600	
28.	$\frac{1}{4}$% of 3,200	
29.	$\frac{1}{4}$% of 5,000	
30.	$\frac{1}{4}$% of 10,000	
31.	$\frac{1}{4}$% of 20,000	
32.	$\frac{1}{4}$% of 40,000	
33.	$\frac{1}{4}$% of 80,000	
34.	1% of 1,000	
35.	$\frac{1}{2}$% of 1,000	
36.	$\frac{1}{4}$% of 1,000	
37.	1% of 4,000	
38.	$\frac{1}{2}$% of 4,000	
39.	$\frac{1}{4}$% of 4,000	
40.	1% of 2,000	
41.	$\frac{1}{2}$% of 2,000	
42.	$\frac{1}{4}$% of 2,000	
43.	$\frac{1}{2}$% of 6,000	
44.	$\frac{1}{4}$% of 6,000	

Sprint: Fractional Percents – Round 2

Number Correct: _____

Improvement: _____

Directions: Find the part that corresponds with each percent.

1.	10% of 30	
2.	10% of 60	
3.	10% of 90	
4.	10% of 120	
5.	10% of 150	
6.	10% of 180	
7.	10% of 210	
8.	20% of 30	
9.	20% of 60	
10.	20% of 90	
11.	20% of 120	
12.	5% of 50	
13.	5% of 100	
14.	5% of 200	
15.	5% of 400	
16.	5% of 800	
17.	5% of 1,600	
18.	5% of 3,200	
19.	5% of 6,400	
20.	5% of 600	
21.	10% of 600	
22.	20% of 600	

23.	$10\frac{1}{2}$% of 100	
24.	$10\frac{1}{2}$% of 200	
25.	$10\frac{1}{2}$% of 400	
26.	$10\frac{1}{2}$% of 800	
27.	$10\frac{1}{2}$% of 1,600	
28.	$10\frac{1}{2}$% of 3,200	
29.	$10\frac{1}{2}$% of 6,400	
30.	$10\frac{1}{4}$ % of 400	
31.	$10\frac{1}{4}$ % of 800	
32.	$10\frac{1}{4}$ % of 1,600	
33.	$10\frac{1}{4}$ % of 3,200	
34.	10% of 1,000	
35.	$10\frac{1}{2}$% of 1,000	
36.	$10\frac{1}{4}$% of 1,000	
37.	10% of 2,000	
38.	$10\frac{1}{2}$% of 2,000	
39.	$10\frac{1}{4}$% of 2,000	
40.	10% of 4,000	
41.	$10\frac{1}{2}$% of 4,000	
42.	$10\frac{1}{4}$% of 4,000	
43.	10% of 5,000	
44.	$10\frac{1}{2}$% of 5,000	

Name _____ Date _____

Lesson 11: Tax, Commissions, Fees, and Other Real-World Percent Problems

Exit Ticket

1. Lee works selling electronics. He earns a 5% commission on each sale he makes.
   a. Write an equation that shows the proportional relationship between the dollar amount of electronics Lee sells, d, and the amount of money he makes in commission, c.

   b. Express the constant of proportionality as a decimal.

   c. Explain what the constant of proportionality means in the context of this situation.

   d. If Lee wants to make $\$100$ in commission, what is the dollar amount of electronics he must sell?

Name _____ Date _____

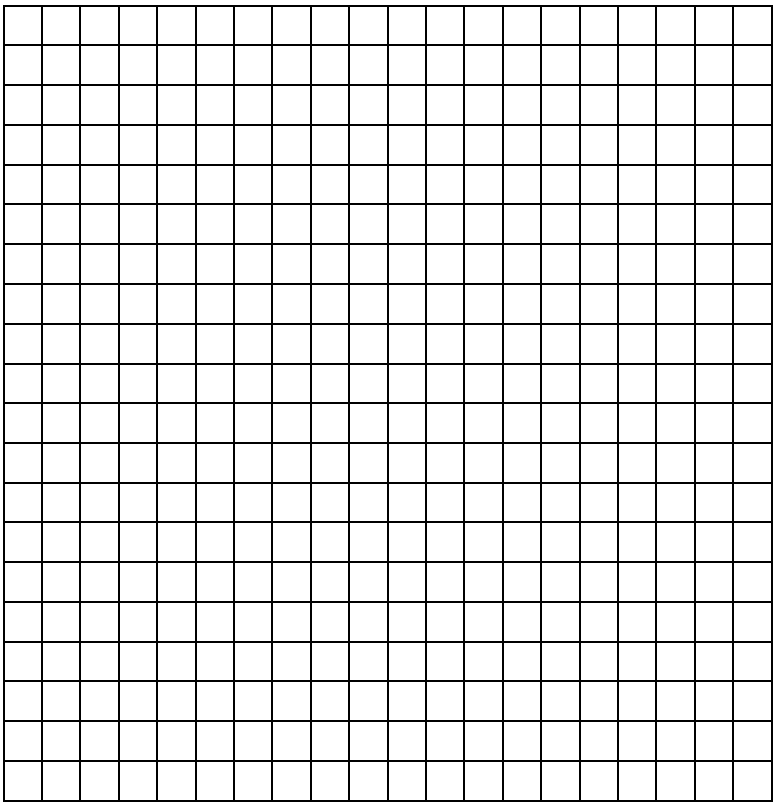
1. In New York State, sales tax rates vary by county. In Allegany County, the sales tax rate is $8\frac{1}{2}\%$.

   a. A book costs $\$12.99$ and a video game costs $\$39.99$. Rounded to the nearest cent, how much more is the tax on the video game than the tax on the book?

   b. Using n to represent the cost of an item before tax and t to represent the amount of sales tax for that item, write an equation to show the relationship between n and t.

   c. Using your equation, create a table that includes five possible pairs of solutions to the equation. Label each column appropriately.

d. Graph the relationship from parts (a) and (b) in the coordinate plane. Include a title and appropriate scales and labels for both axes.



e. Is the relationship proportional? Why or why not? If so, what is the constant of proportionality? Explain.

f. In nearby Wyoming County, the sales tax rate is 8%. If you were to create an equation, graph, and table for this tax rate (similar to parts (a), (b), and (d) above), what would the points $(0,0)$ and $(1,0.08)$ represent? Explain their meaning in the context of this situation.

g. A customer returns an item to a toy store in Wyoming County. The toy store has another location in Allegany County, and the customer shops at both locations. The customer's receipt shows $\$2.12$ tax was charged on a $\$24.99$ item. Was the item purchased at the Wyoming County store or the Allegany County store? Explain and justify your answer by showing your math work.

2. Amy is baking her famous pies to sell at the Town Fall Festival. She uses $32\frac{1}{2}$ cups of flour for every 10 cups of sugar in order to make a dozen pies. Answer the following questions below and show your work.

   a. Write an equation, in terms of f, representing the relationship between the number of cups of flour used and the number of cups of sugar used to make the pies.

   b. Write the constant of proportionality as a percent. Explain what it means in the context of this situation.

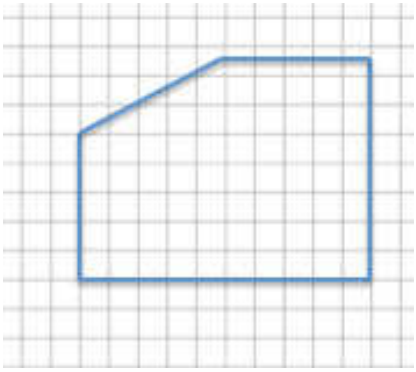
   c. To help sell more pies at the festival, Amy set the price for one pie at 40% less than what it would cost at her bakery. At the festival, she posts a sign that reads, "Amy's Famous Pies only $\$9.00$/pie!" Using this information, what is the price of one pie at the bakery?

Name _____ Date _____

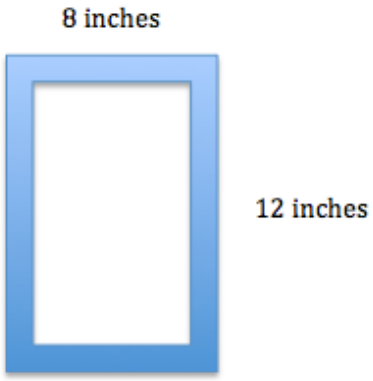
Lesson 12: The Scale Factor as a Percent for a Scale Drawing

Exit Ticket

1. Create a scale drawing of the picture below using a scale factor of 60%. Write three equations that show how you determined the lengths of three different parts of the resulting picture.



2. Sue wants to make two picture frames with lengths and widths that are proportional to the ones given below. Note: The illustration shown below is not drawn to scale.



a. Sketch a scale drawing using a horizontal scale factor of 50% and a vertical scale factor of 75%. Determine the dimensions of the new picture frame.

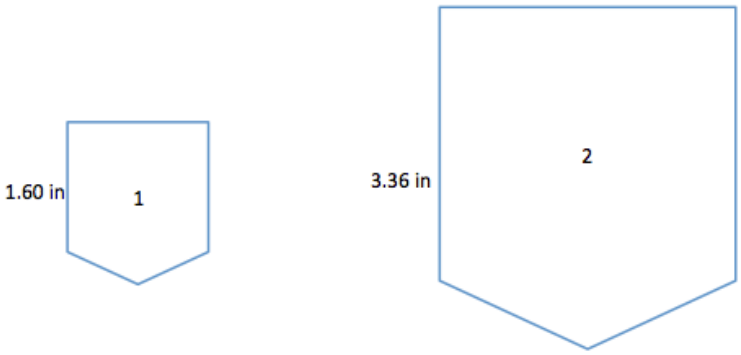
b. Sketch a scale drawing using a horizontal scale factor of 125% and a vertical scale factor of 140%. Determine the dimensions of the new picture frame.

Name _____ Date _____

Lesson 13: Changing Scales

Exit Ticket

1. Compute the scale factor, as a percent, of each given relationship. When necessary, round your answer to the nearest tenth of a percent.

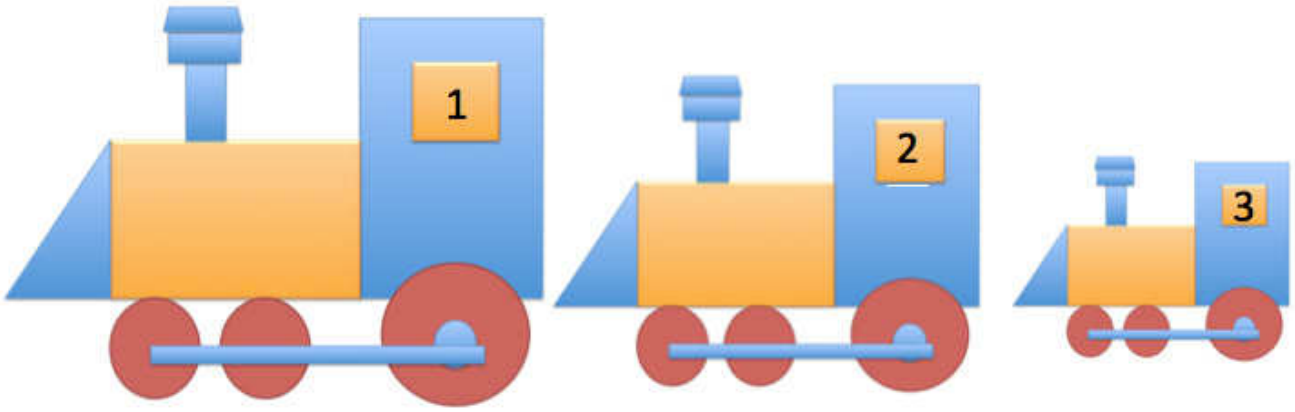


a. Drawing 1 to Drawing 2

b. Drawing 2 to Drawing 1

c. Write two different equations that illustrate how each scale factor relates to the lengths in the diagram.

2. Drawings 2 and 3 are scale drawings of Drawing 1. The scale factor from Drawing 1 to Drawing 2 is 75%, and the scale factor from Drawing 2 to Drawing 3 is 50%. Find the scale factor from Drawing 1 to Drawing 3.

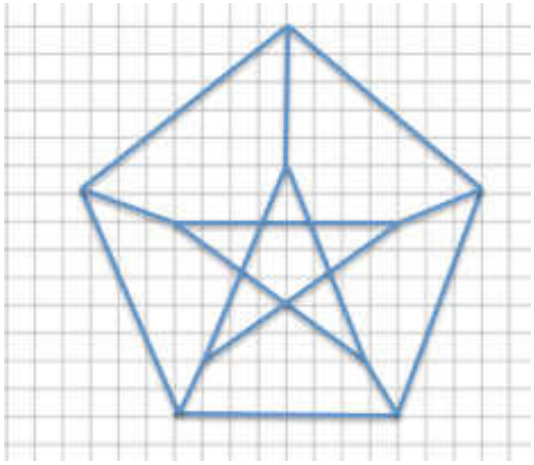


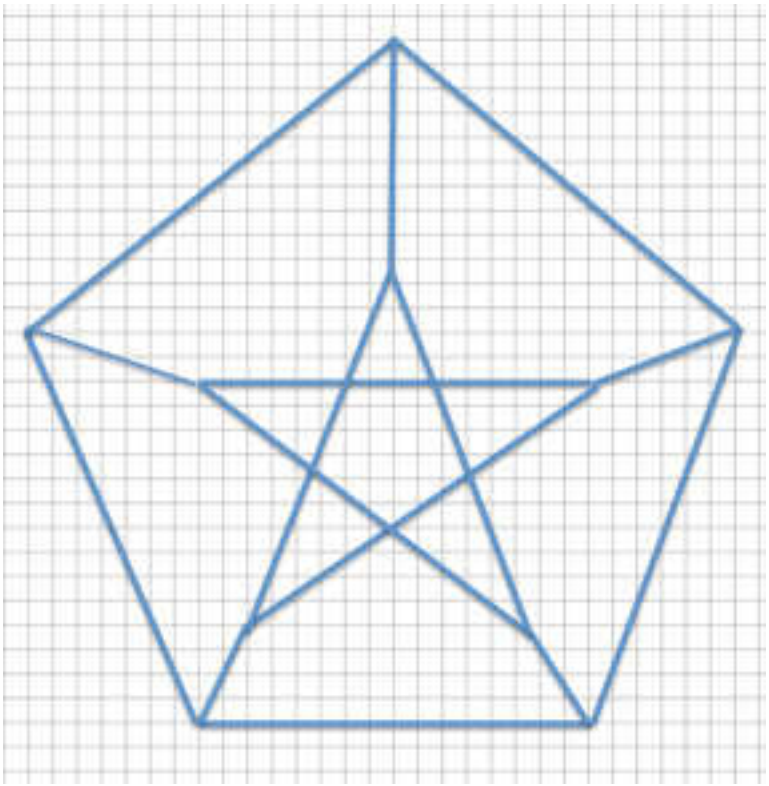
Name _____ Date _____

Lesson 14: Computing Actual Lengths from a Scale Drawing

Exit Ticket

Each of the designs shown below is going to be displayed in a window using strands of white lights. The smaller design requires 225 feet of lights. How many feet of lights does the enlarged design require?



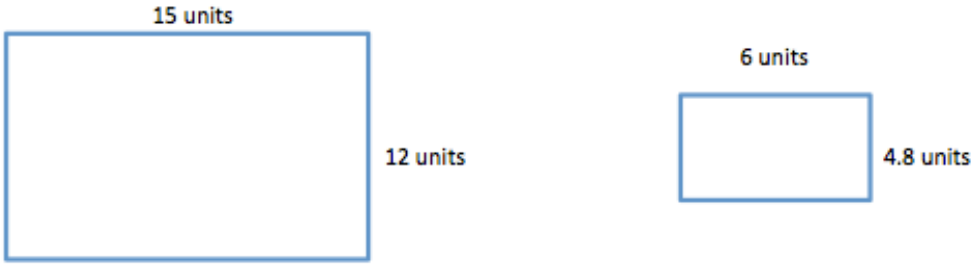


Name _____ Date _____

Lesson 15: Solving Area Problems Using Scale Drawings

Exit Ticket

Write an equation relating the area of the original (larger) drawing to its smaller scale drawing. Explain how you determined the equation. What percent of the area of the larger drawing is the smaller scale drawing?



Name _____ Date _____

Lesson 16: Population Problems

Exit Ticket

1. Jodie spent 25% less buying her English reading book than Claudia. Gianna spent 9% less than Claudia. Gianna spent more than Jodie by what percent?

2. Mr. Ellis is a teacher who tutors students after school. Of the students he tutors, 30% need help in computer science and the rest need assistance in math. Of the students who need help in computer science, 40% are enrolled in Mr. Ellis's class during the school day. Of the students who need help in math, 25% are enrolled in his class during the school day. What percent of the after-school students are enrolled in Mr. Ellis's classes?

Name _____ Date _____

Lesson 17: Mixture Problems

Exit Ticket

A 25% vinegar solution is combined with triple the amount of a 45% vinegar solution and a 5% vinegar solution resulting in 20 milliliters of a 30% vinegar solution.

1. Determine an equation that models this situation, and explain what each part represents in the situation.

2. Solve the equation and find the amount of each of the solutions that were combined.

Name _____ Date _____

Lesson 18: Counting Problems

Exit Ticket

1. There are a van and a bus transporting students on a student camping trip. Arriving at the site, there are 3 parking spots. Let v represent the van and b represent the bus. The chart shows the different ways the vehicles can park.

	Parking Space 1	Parking Space2	Parking Space 3
Option 1	V	B	
Option 2	V		B
Option 3	B	V	
Option 4	B		V
Option 5		V	B
Option 6		B	V

a. In what percent of arrangements are the vehicles separated by an empty parking space?

b. In what percent of arrangements are the vehicles parked next to each other?

c. In what percent of arrangements does the left or right parking space remain vacant?

Name _____ Date _____

DAY ONE: CALCULATOR ACTIVE

You may use a calculator for this part of the assessment. Show your work to receive full credit.

1. Kara works at a fine jewelry store and earns commission on her total sales for the week. Her weekly paycheck was in the amount of $\$6{,}500$, including her salary of $\$1{,}000$. Her sales for the week totaled $\$45{,}000$. Express her rate of commission as a percent, rounded to the nearest whole number.

2. Kacey and her three friends went out for lunch, and they wanted to leave a 15% tip. The receipt shown below lists the lunch total before tax and tip. The tip is on the cost of the food plus tax. The sales tax rate in Pleasantville is 8.75%.

   a. Use mental math to estimate the approximate total cost of the bill including tax and tip to the nearest dollar. Explain how you arrived at your answer.

SAM'S WORLD FAMOUS BURGER
1522 OAK ROAD
PLEASANTVILLE, USA

BBQ BURGER W/CHEESE	9.99
CHICKEN FINGER BASKE	8.99
MUSHROOM BURGER	10.99
CHILI CHEESE FRIES	8.99
TOTAL:	$38.96

THANKS FOR YOUR BUSINESS.
FOLLOW US ONLINE!

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b. Find the actual total of the bill including tax and tip. If Kacey and her three friends split the bill equally, how much will each person pay including tax and tip?

3. Cool Tees is having a Back to School sale where all t-shirts are discounted by 15%. Joshua wants to buy five shirts: one costs $\$9.99$, two cost $\$11.99$ each, and two others cost $\$21.00$ each.

a. What is the total cost of the shirts including the discount?

b. By law, sales tax is calculated on the discounted price of the shirts. Would the total cost of the shirts including the 6.5% sales tax be greater if the tax was applied before a 15% discount is taken, rather than after a 15% discount is taken? Explain.

c. Joshua remembered he had a coupon in his pocket that would take an additional 30% off the price of the shirts. Calculate the new total cost of the shirts including the sales tax.

d. If the price of each shirt is 120% of the store's cost price, write an equation and find the store's cost price for a $\$21$ shirt.

4. Tierra, Cameron, and Justice wrote equations to calculate the amount of money in a savings account after one year with $\frac{1}{2}\%$ interest paid annually on a balance of M dollars. Let T represent the total amount of money saved.

Tiara's Equation:	$T = 1.05M$
Cameron's Equation:	$T = M + 0.005M$
Justice's Equation:	$T = M(1 + 0.005)$

a. The three students decided to see if their equations would give the same answer by using a $\$100$ balance. Find the total amount of money in the savings account using each student's equation. Show your work.

b. Explain why their equations will or will not give the same answer.

5. A printing company is enlarging the image on a postcard to make a greeting card. The enlargement of the postcard's rectangular image is done using a scale factor of 125%. Be sure to show all other related math work.
   a. Represent a scale factor of 125% as a fraction and decimal.

   b. The postcard's dimensions are 7 inches by 5 inches. What are the dimensions of the greeting card?

   c. If the printing company makes a poster by enlarging the postcard image, and the poster's dimensions are 28 inches by 20 inches, represent the scale factor as a percent.

d. Write an equation, in terms of the scale factor, that shows the relationship between the areas of the postcard and poster. Explain your equation.

e. Suppose the printing company wanted to start with the greeting card's image and reduce it to create the postcard's image. What scale factor would they use? Represent this scale factor as a percent.

f. In math class, students had to create a scale drawing that was smaller than the postcard image. Azra used a scale factor of 60% to create the smaller image. She stated the dimensions of her smaller image as: $4\frac{1}{6}$ inches by 3 inches. Azra's math teacher did not give her full credit for her answer. Why? Explain Azra's error, and write the answer correctly.

Name _____ Date _____

DAY TWO: CALCULATOR INACTIVE

You will now complete the remainder of the assessment without the use of a calculator.

6. A $\$100$ MP3 player is marked up by 10% and then marked down by 10%. What is the final price? Explain your answer.

7. The water level in a swimming pool increased from 4.5 feet to 6 feet. What is the percent increase in the water level rounded to the nearest tenth of a percent? Show your work.

8. A 5-gallon mixture contains 40% acid. A 3-gallon mixture contains 50% acid. What percent acid is obtained by putting the two mixtures together? Show your work.

9. In Mr. Johnson's third and fourth period classes, 30% of the students scored a 95% or higher on a quiz. Let n be the total number of students in Mr. Johnson's classes. Answer the following questions, and show your work to support your answers.

   a. If 15 students scored a 95% or higher, write an equation involving n that relates the number of students who scored a 95% or higher to the total number of students in Mr. Johnson's third and fourth period classes.

   b. Solve your equation in part (a) to find how many students are in Mr. Johnson's third and fourth period classes.

   c. Of the students who scored below 95%, 40% of them are girls. How many boys scored below 95%?