

Name _____

Date _____

Lesson 2: Ratios

Exit Ticket

Give two different ratios with a description of the ratio relationship using the following information:

There are 15 male teachers in the school. There are 35 female teachers in the school.

Name _____

Date _____

Lesson 3: Equivalent Ratios

Exit Ticket

Pam and her brother both open savings accounts. Each begin with a balance of zero dollars. For every two dollars that Pam saves in her account, her brother saves five dollars in his account.

1. Determine a ratio to describe the money in Pam's account to the money in her brother's account.
2. If Pam has 40 dollars in her account, how much money does her brother have in his account? Use a tape diagram to support your answer.
3. Record the equivalent ratio using the information from part (b) above.
4. Create another possible ratio that describes the relationship between the amount of money in Pam's account and the amount of money in her brother's account.

Name _____

Date _____

Lesson 4: Equivalent Ratios

Exit Ticket

There are 35 boys in the sixth grade. The number of girls in the sixth grade is 42. Lonnie says that means the ratio of the number of boys in the sixth grade to the number of girls in the sixth grade is 5:7. Is Lonnie correct? Show why or why not.

Name _____

Date _____

Lesson 5: Solving Problems by Finding Equivalent Ratios

Exit Ticket

When Carla looked out at the school parking lot, she noticed that for every 2 minivans, there were 5 other types of vehicles. If there are 161 vehicles in the parking lot, how many of them are not minivans?

Name _____

Date _____

Lesson 6: Solving Problems by Finding Equivalent Ratios

Exit Ticket

Students surveyed boys and girls separately to determine which sport was enjoyed the most. After completing the boy survey, it was determined that for every 3 boys who enjoyed soccer, 5 boys enjoyed basketball. The girl survey had a ratio of the number of girls who enjoyed soccer to the number of girls who enjoyed basketball of 7:1. If the same number of boys and girls were surveyed, and 90 boys enjoy soccer, how many girls enjoy each sport?

Name _____

Date _____

Lesson 7: Associated Ratios and the Value of a Ratio

Exit Ticket

Alyssa's extended family is staying at the lake house this weekend for a family reunion. She is in charge of making homemade pancakes for the entire group. The pancake mix requires 2 cups of flour for every 10 pancakes.

1. Write a ratio to show the relationship between the number of cups of flour and the number of pancakes made.
2. Determine the value of the ratio.
3. Use the value of the ratio to fill in the following two multiplicative comparison statements.
 - a. The number of pancakes made is _____ times the amount of cups of flour needed.
 - b. The amount of cups of flour needed is _____ of the number of pancakes made.
4. If Alyssa has to make 70 pancakes, how many cups of flour will she have to use?

Name _____

Date _____

Lesson 8: Equivalent Ratios Defined Through the Value of a Ratio

Exit Ticket

You created a new playlist, and 100 of your friends listened to it and shared if they liked the new playlist or not. Nadhii said the ratio of the number of people who liked the playlist to the number of people who did not like the playlist is 75:25. Dylan said that for every three people who liked the playlist, one person did not.

Do Nadhii and Dylan agree? Prove your answer using the values of the ratios.

Name _____

Date _____

Lesson 9: Tables of Equivalent Ratios

Exit Ticket

A father and his young toddler are walking along the sidewalk. For every 3 steps the father takes, the son takes 5 steps just to keep up. What is the ratio of the number of steps the father takes to the number of steps the son takes? Add labels to the columns of the table and place the ratio into the first row of data. Add equivalent ratios to build a ratio table.

What can you say about the values of the ratios in the table?

Name _____

Date _____

Lesson 10: The Structure of Ratio Tables—Additive and Multiplicative

Exit Ticket

Show more than one way you could use the structure of the table to find the unknown value. Fill in the unknown values.

| Number of Weeks | Amount of Money in Account |
|-----------------|----------------------------|
| 2 | \$350 |
| 4 | \$700 |
| 6 | \$1,050 |
| 8 | |
| 10 | |

Name _____

Date _____

Lesson 11: Comparing Ratios Using Ratio Tables

Exit Ticket

Beekeepers sometimes supplement the diet of honey bees with sugar water to help promote colony growth in the spring and help the bees survive through fall and winter months. The tables below show the amount of water and the amount of sugar used in the Spring and in the Fall.

| Spring Sugar Water Mixture | |
|----------------------------|--------------|
| Sugar (cups) | Water (cups) |
| 6 | 4 |
| 15 | 10 |
| 18 | 12 |
| 27 | 18 |

| Fall Sugar Water Mixture | |
|--------------------------|--------------|
| Sugar (cups) | Water (cups) |
| 4 | 2 |
| 10 | 5 |
| 14 | 7 |
| 30 | 15 |

Write a sentence that compares the ratios of the number of cups of sugar to the number of cups of water in each table.

Explain how you determined your answer.

Name _____

Date _____

Lesson 12: From Ratio Tables to Double Number Line Diagrams

Exit Ticket

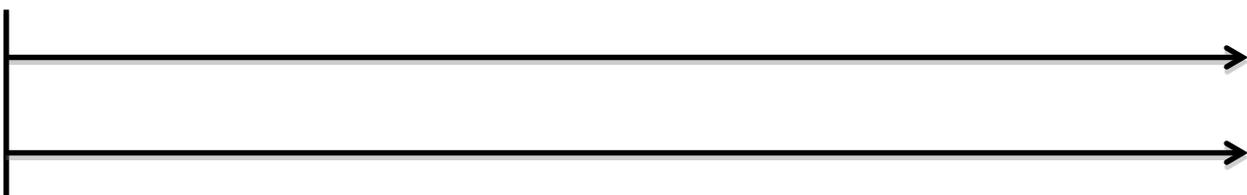
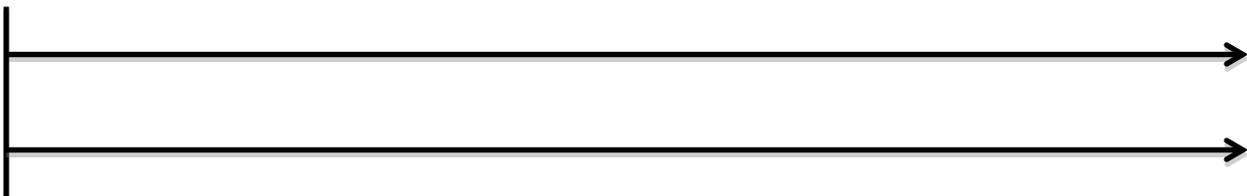
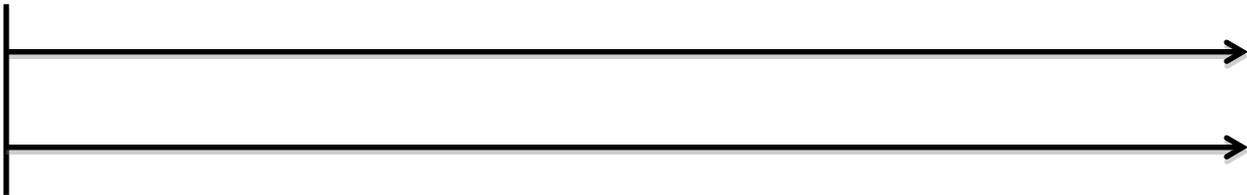
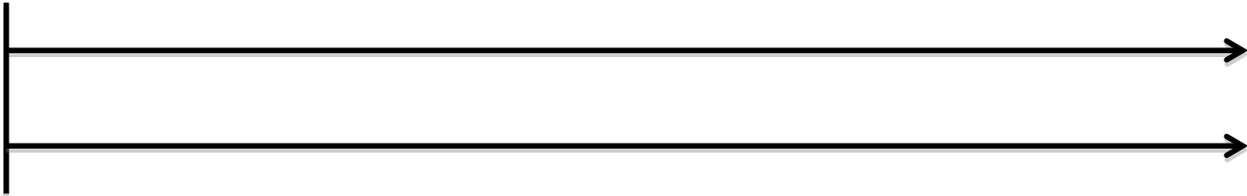
Kyra is participating in a fundraiser walk-a-thon. She walks 2 miles in 30 minutes. If she continues to walk at the same rate, determine how many minutes it will take her to walk 7 miles. Use a double number line diagram to support your answer.

| | | | |
|--------|-------|---------------------|---------------------------------|
| 7 to 4 | 28:16 | $3\frac{1}{2}$ to 2 | 35:20 |
| 3 to 8 | 30:80 | 6 to 16 | 12:32 |
| 5 to 1 | 45:9 | 15 to 3 | $2\frac{1}{2}$ to $\frac{1}{2}$ |

| | | | |
|--------|-------|---------------------|--------------------|
| 3 to 4 | 9:16 | $1\frac{1}{2}$ to 2 | 15:20 |
| 3 to 6 | 30:60 | 1 to 2 | 4:8 |
| 2 to 1 | 44:22 | 18:9 | 1 to $\frac{1}{2}$ |

| | | | |
|--------|-------|--------------------|---------------------|
| 1 to 6 | 8:48 | 6 to 36 | 5:30 |
| 9 to 4 | 36:16 | 3 to $\frac{4}{3}$ | 18:8 |
| 7 to 6 | 42:36 | 21 to 8 | $3\frac{1}{2}$ to 3 |

Double Number Line Reproducible



Name _____

Date _____

Lesson 13: From Ratio Tables to Equations Using the Value of a Ratio

Exit Ticket

A carpenter uses four nails to install each shelf. Complete the table to represent the relationship between the number of nails (N) and the number of shelves (S). Write the ratio that describes the number of nails per number of shelves. Write as many different equations as you can that describe the relationship between the two quantities.

| Shelves (S) | Nails (N) |
|--------------------|------------------|
| 1 | 4 |
| 2 | |
| | 12 |
| | 16 |
| 5 | |

Name _____

Date _____

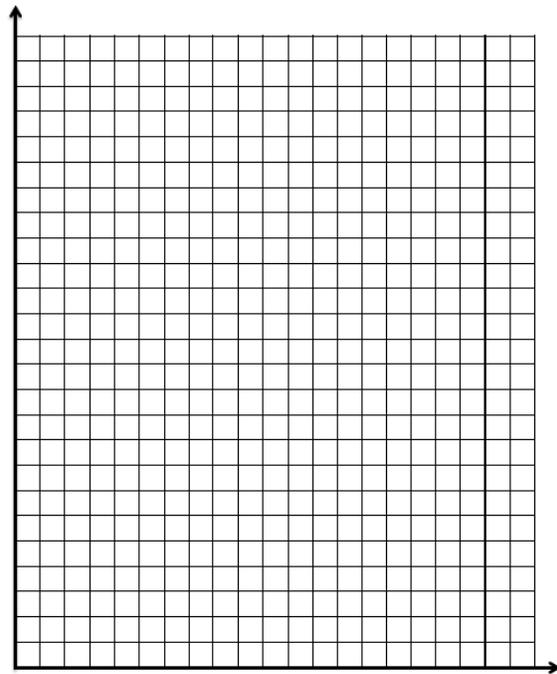
Lesson 14: From Ratio Tables, Equations, and Double Number Line Diagrams to Plots on the Coordinate Plane

Line Diagrams to Plots on the Coordinate Plane

Exit Ticket

Dominic works on the weekends and on vacations from school mowing lawns in his neighborhood. For every lawn he mows, he charges \$12. Complete the table. Then determine ordered pairs, and create a labeled graph.

| Lawns | Charge (in dollars) | Ordered Pairs |
|-------|---------------------|---------------|
| 2 | | |
| 4 | | |
| 6 | | |
| 8 | | |
| 10 | | |



- How many lawns will Dominic need to mow in order to make \$240?
- How much money will Dominic make if he mows 9 lawns?

Name _____

Date _____

Lesson 15: A Synthesis of Representations of Equivalent Ratio Collections

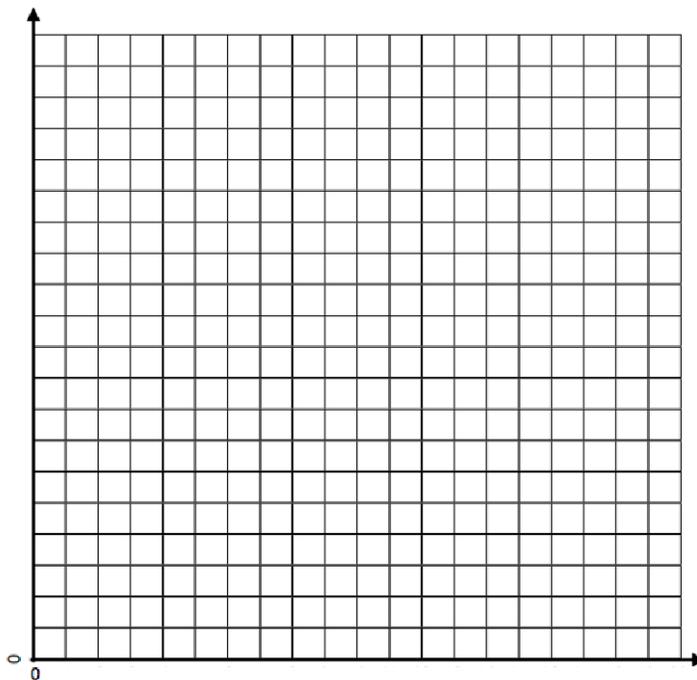
Exit Ticket

Jen and Nikki are making bracelets to sell at the local market. They determined that each bracelet would have eight beads and two charms.

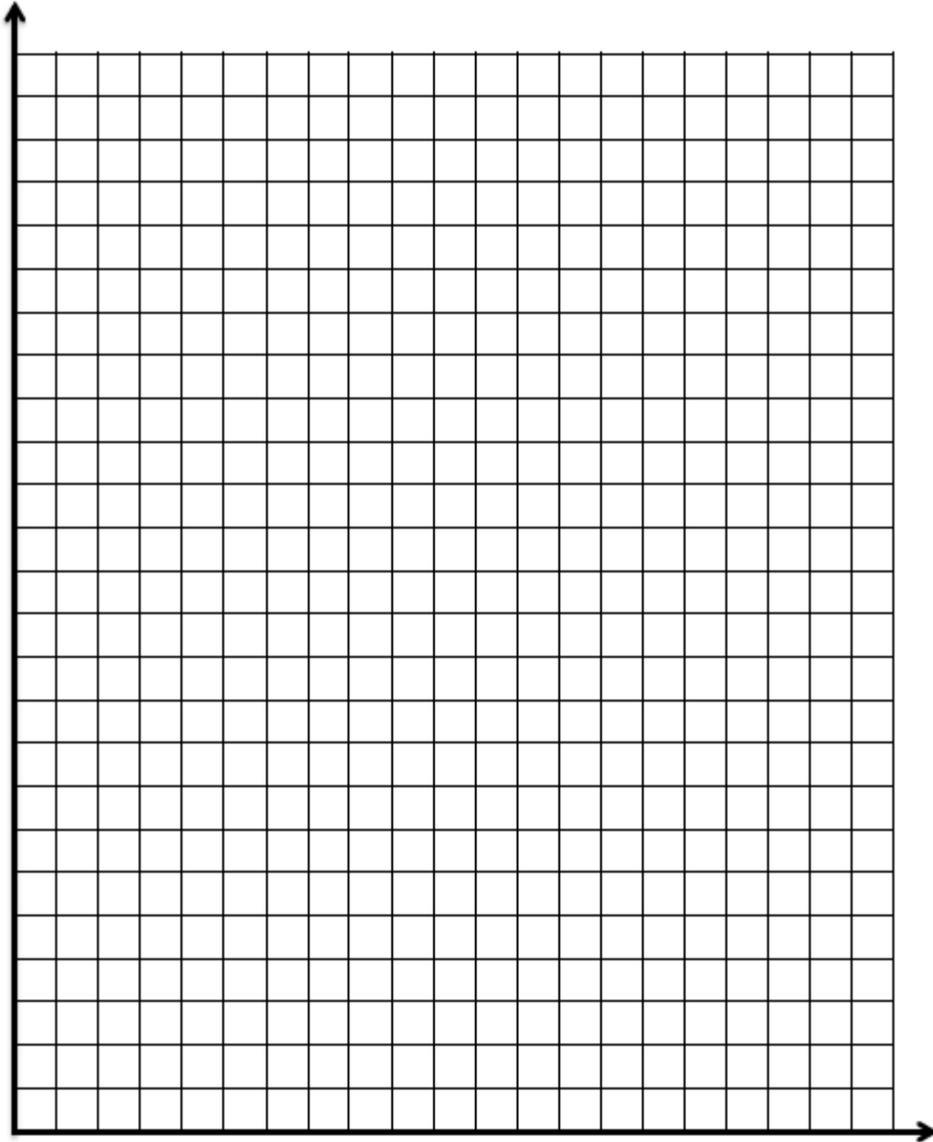
Complete the table below to show the ratio of the number of charms to the number of beads.

| | | | | | |
|--------|---|---|---|---|----|
| Charms | 2 | 4 | 6 | 8 | 10 |
| Beads | 8 | | | | |

Create ordered pairs from the table and plot the pairs on the graph below. Label the axes of the graph and provide a title.



Graph Reproducible



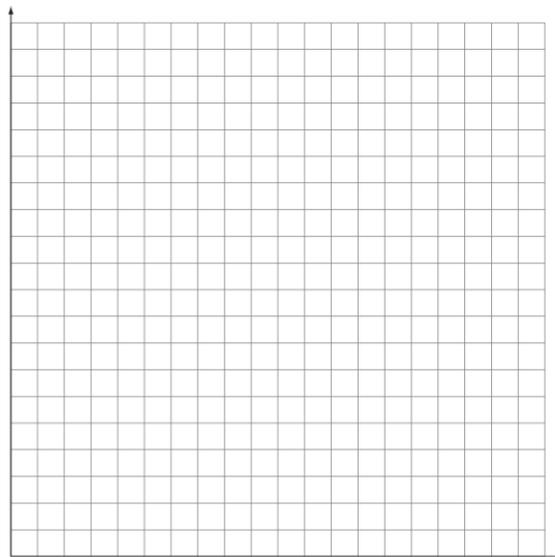
Name _____

Date _____

1. The most common women’s shoe size in the U.S. is reported to be an $8\frac{1}{2}$. A shoe store uses a table like the one below to decide how many pairs of size $8\frac{1}{2}$ shoes to buy when it places a shoe order from the shoe manufacturers.

| Total Number of Pairs of Shoes Being Ordered | Number of Pairs of Size $8\frac{1}{2}$ to Order |
|--|---|
| 50 | 8 |
| 100 | 16 |
| 150 | 24 |
| 200 | 32 |

- a. What is the ratio of the number of pairs of size $8\frac{1}{2}$ shoes the store orders to the total number of pairs of shoes being ordered?
- b. Plot the values from the table on a coordinate plane. Label the axes. Then use the graph to find the number of pairs of size $8\frac{1}{2}$ shoes the store orders for a total order of 125 pairs of shoes.



2. Wells College in Aurora, New York was previously an all-girls college. In 2005, the college began to allow boys to enroll. By 2012, the ratio of boys to girls was 3 to 7. If there were 200 *more girls than boys* in 2012, how many boys were enrolled that year? Use a table, graph, or tape diagram to justify your answer.
3. Most television shows use 13 *minutes of every hour* for commercials, leaving the remaining 47 minutes for the actual show. One popular television show wants to change the ratio of commercial time to show time to be 3:7. Create two ratio tables, one for the normal ratio of commercials to programming and another for the proposed ratio of commercials to programming. Use the ratio tables to make a statement about which ratio would mean fewer commercials for viewers watching 2 hours of television.

Name _____

Date _____

Lesson 16: From Ratios to Rates

Exit Ticket

Angela enjoys swimming and often swims at a steady pace to burn calories. At this pace, Angela can swim 1,700 meters in 40 minutes.

a. What is Angela's unit rate?

b. What is the rate unit?

Name _____

Date _____

Lesson 17: From Rates to Ratios

Exit Ticket

Tiffany is filling her daughter's pool with water from a hose. She can fill the pool at a rate of $\frac{1}{10}$ gallons/second.

Create at least three equivalent ratios that are associated with the rate. Use a double number line to show your work.



Name _____

Date _____

Lesson 18: Finding a Rate by Dividing Two Quantities

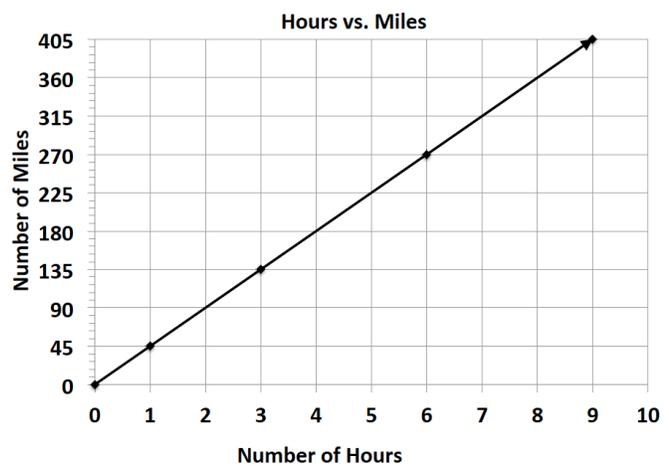
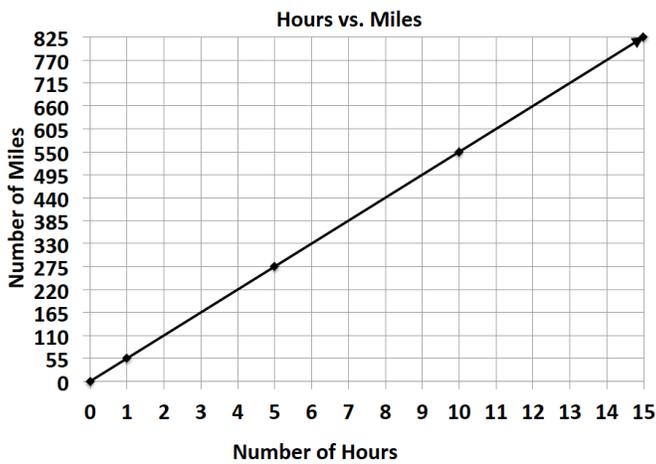
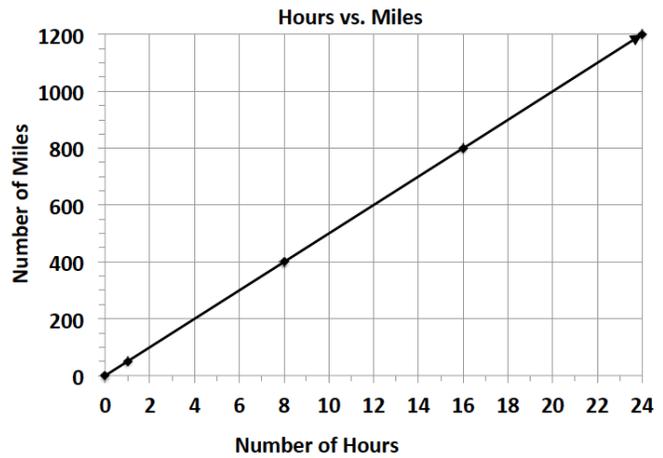
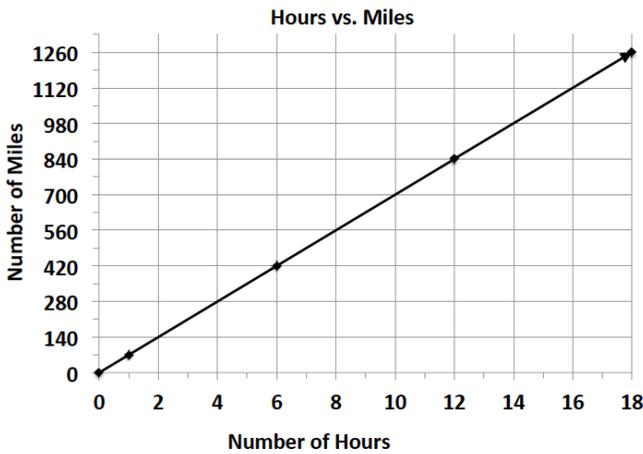
Exit Ticket

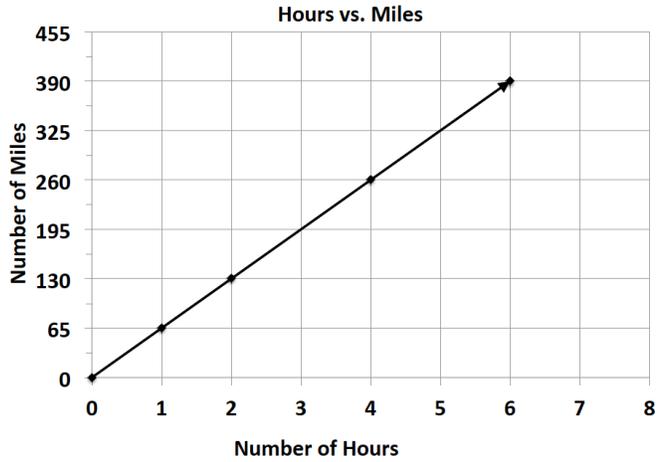
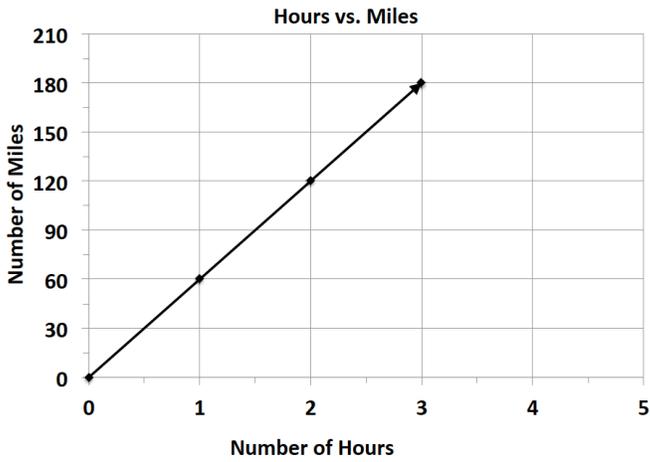
Alejandra drove from Michigan to Colorado to visit her friend. The speed limit on the highway is 70 miles/hour. If Alejandra's combined driving time for the trip was 14 hours, how many miles did Alejandra drive?

Example 3: Matching

Match an equation, table, and graph that represent the same unit rate. Students work individually or in pairs.

Cut apart the data representations below and supply each student-pair with a set.





| $m = 65h$ | $m = 45h$ | $m = 55h$ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|-----------|-----------|-----|------|---|----------|---|-----|-----|-----|--|----------|---|---|----|----|----------|---|-----|-----|------|--|----------|---|---|----|----|----------|---|-----|-----|------|
| $m = 70h$ | $m = 50h$ | $m = 60h$ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr><th><i>h</i></th><td>0</td><td>2</td><td>4</td><td>6</td></tr> </thead> <tbody> <tr><th><i>m</i></th><td>0</td><td>130</td><td>260</td><td>390</td></tr> </tbody> </table> | <i>h</i> | 0 | 2 | 4 | 6 | <i>m</i> | 0 | 130 | 260 | 390 | <table border="1"> <thead> <tr><th><i>h</i></th><td>0</td><td>3</td><td>6</td><td>9</td></tr> </thead> <tbody> <tr><th><i>m</i></th><td>0</td><td>135</td><td>270</td><td>405</td></tr> </tbody> </table> | <i>h</i> | 0 | 3 | 6 | 9 | <i>m</i> | 0 | 135 | 270 | 405 | <table border="1"> <thead> <tr><th><i>h</i></th><td>0</td><td>5</td><td>10</td><td>15</td></tr> </thead> <tbody> <tr><th><i>m</i></th><td>0</td><td>275</td><td>550</td><td>825</td></tr> </tbody> </table> | <i>h</i> | 0 | 5 | 10 | 15 | <i>m</i> | 0 | 275 | 550 | 825 |
| <i>h</i> | 0 | 2 | 4 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>m</i> | 0 | 130 | 260 | 390 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>h</i> | 0 | 3 | 6 | 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>m</i> | 0 | 135 | 270 | 405 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>h</i> | 0 | 5 | 10 | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>m</i> | 0 | 275 | 550 | 825 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr><th><i>h</i></th><td>0</td><td>1</td><td>2</td><td>3</td></tr> </thead> <tbody> <tr><th><i>m</i></th><td>0</td><td>60</td><td>120</td><td>180</td></tr> </tbody> </table> | <i>h</i> | 0 | 1 | 2 | 3 | <i>m</i> | 0 | 60 | 120 | 180 | <table border="1"> <thead> <tr><th><i>h</i></th><td>0</td><td>8</td><td>16</td><td>24</td></tr> </thead> <tbody> <tr><th><i>m</i></th><td>0</td><td>400</td><td>800</td><td>1200</td></tr> </tbody> </table> | <i>h</i> | 0 | 8 | 16 | 24 | <i>m</i> | 0 | 400 | 800 | 1200 | <table border="1"> <thead> <tr><th><i>h</i></th><td>0</td><td>6</td><td>12</td><td>18</td></tr> </thead> <tbody> <tr><th><i>m</i></th><td>0</td><td>420</td><td>840</td><td>1260</td></tr> </tbody> </table> | <i>h</i> | 0 | 6 | 12 | 18 | <i>m</i> | 0 | 420 | 840 | 1260 |
| <i>h</i> | 0 | 1 | 2 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>m</i> | 0 | 60 | 120 | 180 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>h</i> | 0 | 8 | 16 | 24 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>m</i> | 0 | 400 | 800 | 1200 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>h</i> | 0 | 6 | 12 | 18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>m</i> | 0 | 420 | 840 | 1260 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Name _____

Date _____

Lesson 20: Comparison Shopping—Unit Price and Related Measurement Conversions

Exit Ticket

Value Grocery Mart and Market City are both having a sale on the same popular crackers. McKayla is trying to determine which sale is the better deal. Using the given table and equation, determine which store has the better deal on crackers? Explain your reasoning. (Remember to round your answers to the nearest penny.)

Value Grocery Mart:

| | | | | |
|-----------------------------|---|----|----|----|
| Number of Boxes of Crackers | 3 | 6 | 9 | 12 |
| Cost (in dollars) | 5 | 10 | 15 | 20 |

Market City:

$c = 1.75b$, where c represents the cost in dollars and b represents the number of boxes of crackers



Name _____

Date _____

Lesson 21: Getting the Job Done—Speed, Work, and Measurement Units

Exit Ticket

Jill and Erika made 4 gallons of lemonade for their lemonade stand. How many quarts did they make? If they charge \$2.00 per quart, how much money will they make if they sell it all?

| U.S. Customary Length | Conversion |
|-----------------------|--|
| Inch (in.) | 1 in. = $\frac{1}{12}$ ft. |
| Foot (ft.) | 1 ft. = 12 in. |
| Yard (yd.) | 1 yd. = 3 ft. 1 yd. = 36 in. |
| Mile (mi.) | 1 mi. = 1,760 yd. 1 mi. = 5,280 ft. |

| Metric Length | Conversion |
|-----------------|--------------------------------|
| Centimeter (cm) | 1 cm = 10 mm |
| Meter (m) | 1 m = 100 cm 1 m = 1,000 mm |
| Kilometer (km) | 1 km = 1,000 m |

| U.S. Customary Weight | Conversion |
|-----------------------|------------------|
| Pound (lb.) | 1 lb. = 16 oz. |
| Ton (T.) | 1 T. = 2,000 lb. |

| Metric Capacity | Conversion |
|-----------------|----------------|
| Liter (L) | 1 L = 1,000 ml |
| Kiloliter (kL) | 1 kL = 1,000 L |

| U.S. Customary Capacity | Conversion |
|-------------------------|---|
| Cup (c.) | 1 c. = 8 fluid ounces |
| Pint (pt.) | 1 pt. = 2 c. |
| Quart (qt.) | 1 qt. = 4 c. 1 qt. = 2 pt. 1 qt. = 32 fluid ounces |
| Gallon (gal.) | 1 gal. = 4 qt. 1 gal. = 8 pt. 1 gal. = 16 c. 1 gal. = 128 fluid ounces |

| Metric Mass | Conversion |
|---------------|----------------|
| Gram (g) | 1 g = 1,000 mg |
| Kilogram (kg) | 1 kg = 1,000 g |

Name _____

Date _____

Lesson 22: Getting the Job Done—Speed, Work, and Measurement Units

Exit Ticket

Franny took a road trip to her grandmother’s house. She drove at a constant speed of 60 miles per hour for 2 hours. She took a break and then finished the rest of her trip driving at a constant speed of 50 miles per hour for 2 hours. What was the total distance of Franny’s trip?

Name _____

Date _____

Lesson 23: Problem Solving Using Rates, Unit Rates, and Conversions

Exit Ticket

A 6th grade math teacher can grade 25 homework assignments in 20 minutes.

Is he working at a faster rate or slower rate than grading 36 homework assignments in 30 minutes?

Name _____

Date _____

Lesson 24: Percents and Rates per 100

Exit Ticket

One hundred offices need to be painted. The workers choose between yellow, blue, or beige paint. They decide that 45% of the offices will be painted yellow; 28% will be painted blue, and the remaining offices will be painted beige. Create a model that shows the percent of offices that will be painted by each color. Write the amounts as decimals and fractions.

| Color | % | Fraction | Decimal |
|--------|---|----------|---------|
| Yellow | | | |
| Blue | | | |
| Beige | | | |

| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | |
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Name _____

Date _____

Lesson 25: A Fraction as a Percent

Exit Ticket

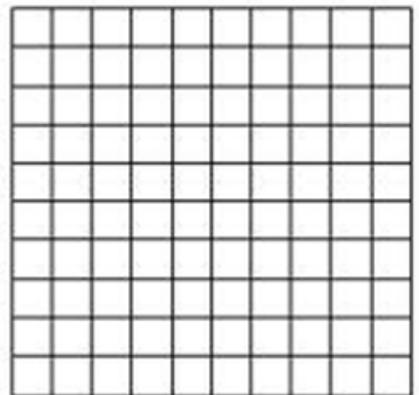
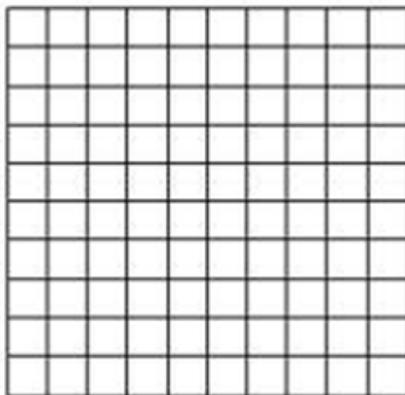
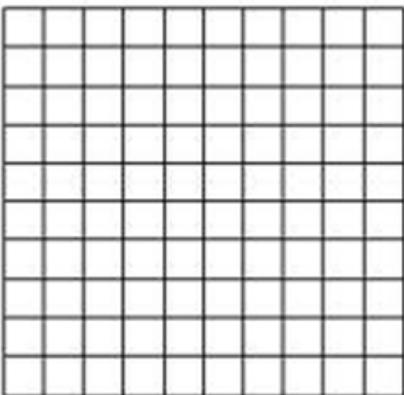
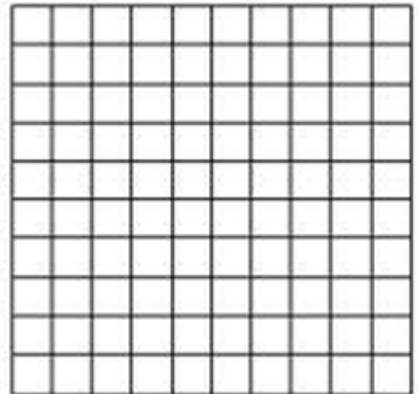
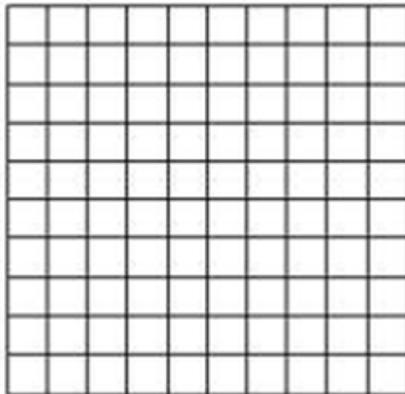
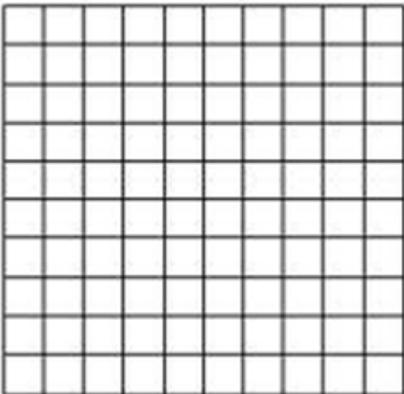
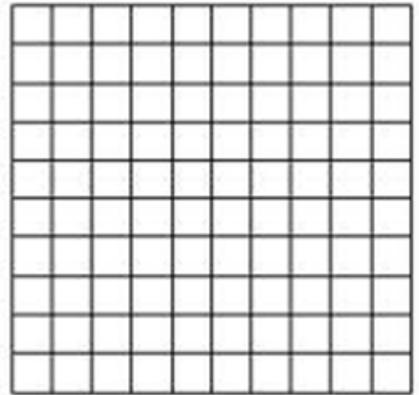
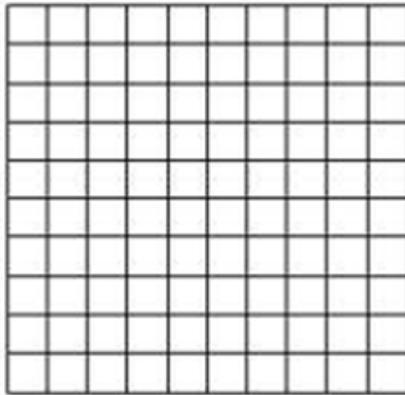
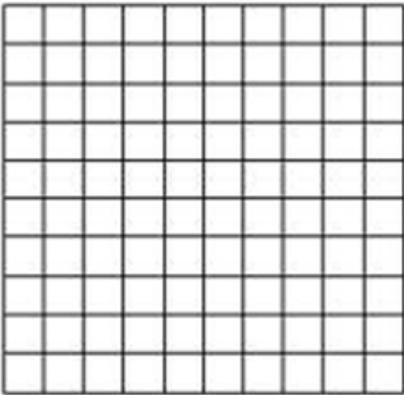
Show all the necessary work to support your answer.

1. Convert 0.3 to a fraction and a percent.

2. Convert 9% to a fraction and a decimal.

3. Convert $\frac{3}{8}$ to a decimal and percent.

10 × 10 Grid Reproducible



Name _____

Date _____

Lesson 27: Solving Percent Problems

Exit Ticket

Jane paid \$40 for an item after she received a 20% discount. Jane's friend says this means that the original price of the item was \$48.

a. How do you think Jane's friend arrived at this amount?

b. Is her friend correct? Why or why not?

Name _____

Date _____

Lesson 29: Solving Percent Problems

Exit Ticket

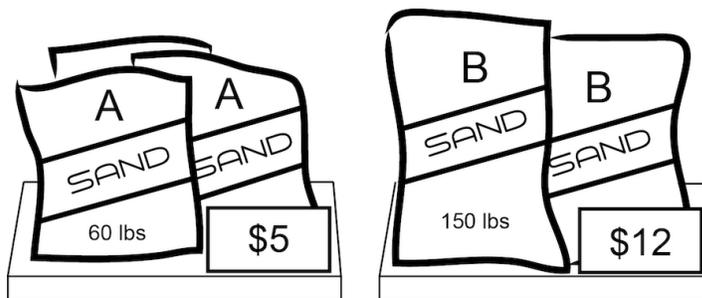
Angelina received two discounts on a \$50 pair of shoes. The discounts were taken off one after the other. If she paid \$30 for the shoes, what was the percent discount for each coupon? Is there only one answer to this question?

Name _____

Date _____

1. Jasmine has taken an online boating safety course and is now completing her end of course exam. As she answers each question, the progress bar at the bottom of the screen shows what portion of the test she has finished. She has just completed question 16 and the progress bar shows she is 20% complete. How many total questions are on the test? Use a table, diagram, or equation to justify your answer.

2. Alisa hopes to play beach volleyball in the Olympics someday. She has convinced her parents to allow her to set up a beach volleyball court in their back yard. A standard beach volleyball court is approximately 26 feet by 52 feet. She figures that she will need the sand to be one foot deep. She goes to the hardware store to shop for sand and sees the following signs on pallets containing bags of sand.



- a. What is the rate that Brand A is selling for? Give the rate and then specify the unit rate.

- b. Which brand is offering the better value? Explain your answer.
- c. Alisa uses her cell phone to search how many pounds of sand is required to fill 1 cubic foot and finds the answer is 100 pounds. Choose one of the brands and compute how much it will cost Alisa to purchase enough sand to fill the court. Identify which brand was chosen as part of your answer.

3. Loren and Julie have different part time jobs after school. They are both paid at a constant rate of dollars per hour. The tables below show Loren and Julie's total income (amount earned) for working a given amount of time.

Loren

| | | | | | | | | | |
|---------|----|----|----|----|----|-----|----|----|-----|
| Hours | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 |
| Dollars | 18 | 36 | 54 | 72 | 90 | 108 | | | 162 |

Julie

| | | | | | | | | | |
|---------|----|---|-----|-----|-----|-----|----|-----|-----|
| Hours | 3 | 6 | 9 | 12 | 15 | 18 | 21 | 24 | 27 |
| Dollars | 36 | | 108 | 144 | 180 | 216 | | 288 | 324 |

- a. Find the missing values in the two tables above.
- b. Who makes more per hour? Justify your answer.
- c. Write how much Julie makes as a rate. What is the unit rate?

- d. How much money would Julie earn for working 16 hours?
- e. What is the ratio between how much Loren makes per hour and how much Julie makes per hour?
- f. Julie works $\frac{1}{12}$ hours/dollar. Write a one or two-sentence explanation of what this rate means. Use this rate to find how long it takes for Julie to earn \$228.

4. Your mother takes you to your grandparents' house for dinner. She drives 60 minutes at a constant speed of 40 miles per hour. She reaches the highway and quickly speeds up and drives for another 30 minutes at constant speed of 70 miles per hour.
- a. How far did you and your mother travel altogether?
- b. How long did the trip take?
- c. Your older brother drove to your grandparents' house in a different car, but left from the same location at the same time. If he traveled at a constant speed of 60 miles per hour, explain why he would reach your grandparents house first. Use words, diagrams, or numbers to explain your reasoning.