



Domain 2

Ratios and Proportional Relationships

Domain 2: Diagnostic Assessment for Lessons 12–16

Lesson 12 Ratios
6.RP.1

Lesson 15 Percents
6.RP.3.c

Lesson 13 Equivalent Ratios
6.RP.3.a

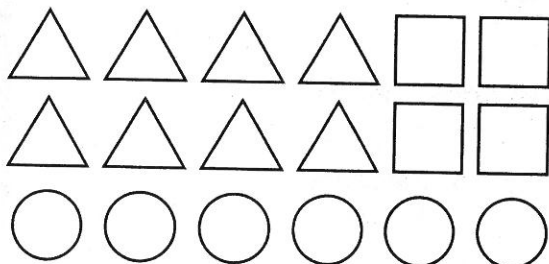
Lesson 16 Convert Measurements
6.RP.3.d

Lesson 14 Unit Rates
6.RP.2, 6.RP.3.b

Domain 2: Cumulative Assessment for Lessons 12–16

Domain 2: Diagnostic Assessment for Lessons 12–16

Use the diagram for questions 1 and 2.



- In simplest form, what is the ratio of circles to triangles?
 - 2:3
 - 3:4
 - 3:2
 - 2:1
- Which is **not** another way to express the ratio of all figures to squares?
 - 9 to 2
 - 9:2
 - $\frac{9}{2}$
 - $4\frac{1}{2}$
- 147 is 35% of what number?
 - 51.45
 - 420
 - 514.5
 - 4,200
- Which value of x will make these ratios equivalent?
$$\frac{20}{35} = \frac{4}{x}$$
 - 19
 - 15
 - 7
 - 5
- An artist mixes 2 parts blue paint and 3 parts yellow paint to get a shade of green. How many parts blue paint should the artist mix with 12 parts yellow paint to get the same shade of green?
 - 6
 - 8
 - 9
 - 13

Domain 2: Diagnostic Assessment for Lessons 12–16

6. Which of the following does **not** have a unit rate of \$16 for one pair of pants?
- A. \$32 for 2 pair of pants
 - B. \$48 for 3 pair of pants
 - C. \$64 for 4 pair of pants
 - D. \$90 for 5 pair of pants
7. A recipe for apple crisp uses 2 parts oats, 4 parts brown sugar, and 6 parts flour. In simplest form, how many parts of brown sugar are there for every part of flour?
- A. $\frac{2}{3}$ part
 - B. $\frac{1}{2}$ part
 - C. $\frac{1}{3}$ part
 - D. $\frac{1}{4}$ part
8. Bart drove 140 miles in $2\frac{1}{2}$ hours. What was Bart's average speed in miles per hour?
- A. 66 miles per hour
 - B. 65 miles per hour
 - C. 56 miles per hour
 - D. 55 miles per hour
9. The local movie theater collected a total of \$8,250 last night, of which 45% came from sales at the concession stand. How much money did the theater collect at the concession stand?
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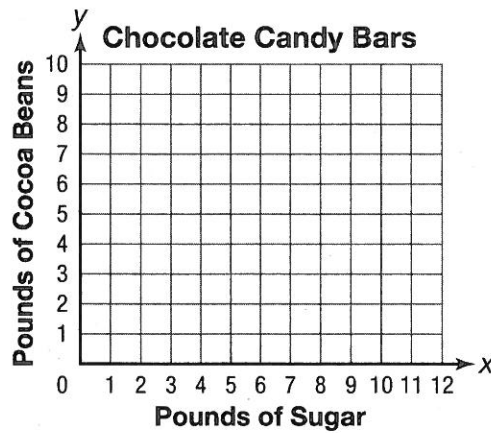
10. The table shows the number of pounds of sugar and cocoa beans that a company uses to make chocolate candy bars.

Chocolate Candy Bars

Pounds of Sugar	3	6	9	12
Pounds of Cocoa Beans	2	4	6	?

- A. How many pounds of cocoa beans should be mixed with 12 pounds of sugar?
-

- B. Plot the ordered pairs from the table on the coordinate grid.





Lesson Practice

Choose the correct answer.

Use the diagram for questions 1 and 2.



- What is the ratio of stars to hearts?
 - 2:3
 - 2:5
 - 3:2
 - 3:5
- What is the ratio of all figures to stars?
 - 5 to 2
 - 5 to 3
 - 3 to 5
 - 2 to 3
- Which is **not** another way to express the ratio 60 to 25?
 - $\frac{12}{5}$
 - 12:5
 - 12 to 5
 - $2\frac{2}{5}$
- Paul has 16 baseballs and 12 golf balls. What is the ratio of baseballs to golf balls?
 - $\frac{4}{7}$
 - $\frac{3}{4}$
 - $\frac{4}{3}$
 - $\frac{7}{4}$
- There were 15 cars and 25 trucks in the parking garage. What is the ratio of cars to total vehicles?
 - 3:8
 - 3:5
 - 5:3
 - 8:3
- In his last soccer game, Chris made 9 saves and let in 3 goals. What was his ratio of saves to total shots on goal?
 - $\frac{3}{1}$
 - $\frac{4}{3}$
 - $\frac{3}{4}$
 - $\frac{1}{3}$

Use the table for questions 7 and 8.

Chantal's Flower Bed

Type of Flower	Number of Bulbs
Daffodils	8
Hyacinths	10
Tulips	12

7. Which ratio compares the number of daffodil bulbs to the number of tulip bulbs?
- A. 3:4
B. 3:2
C. 4:3
D. 2:3
8. For every 3 bulbs that were planted, how many hyacinth bulbs were planted?
- A. 1
B. 2
C. 3
D. 5

9. The table shows the number of votes that the candidates for class president received.

Votes for Class President

Candidate	Number of Votes
Brooke	18
Derek	36
Aidan	54
Julianne	27
Leonard	45

- A. For every vote that Brooke received, who received three times as many?

- B. What is the ratio in simplest form of the number of votes Derek received to the total number of votes? Explain how you found your answer.



Lesson Practice

Choose the correct answer.

- Which ratio is equivalent to $\frac{3}{10}$?
 - $\frac{9}{10}$
 - $\frac{9}{13}$
 - $\frac{9}{20}$
 - $\frac{9}{30}$
- Which ratio is **not** equivalent to $\frac{5}{3}$?
 - $\frac{35}{21}$
 - $\frac{25}{15}$
 - $\frac{18}{12}$
 - $\frac{10}{6}$
- Which pair of ratios are equivalent?
 - $\frac{6}{9}$ and $\frac{12}{16}$
 - $\frac{9}{15}$ and $\frac{18}{30}$
 - $\frac{10}{18}$ and $\frac{16}{27}$
 - $\frac{12}{15}$ and $\frac{15}{20}$
- A television station shows 3 commercials every 12 minutes. At that rate, how many commercials will the station show in 60 minutes?
 - 30
 - 15
 - 12
 - 8

- The table below shows the number of cups of sugar and of flour needed to make some cookies. If Alex uses 5 cups of sugar to make cookies, how many cups of flour does he need?

Cookie Ingredients

Cups of Flour	6	9	12	?
Cups of Sugar	2	3	4	5

- 20 cups
 - 15 cups
 - 13 cups
 - 6 cups
- The ratio of blue marbles to red marbles in a bag is 11:9. If there are 99 blue marbles in the bag, how many red marbles are there?
 - 18
 - 35
 - 81
 - 121
 - The ratio of boys to girls in a chorus is 5 to 6. Which shows an equivalent ratio?
 - 10 boys to 12 girls
 - 15 boys to 19 girls
 - 20 boys to 25 girls
 - 24 boys to 28 girls



Lesson Practice

Choose the correct answer.

- Which of the following is **not** an example of a rate?
 - 2 cups for every 3 cups
 - 120 beats per minute
 - 16 ounces for \$2
 - 8 inches per 12 hours
- Ling is driving at a constant speed of 55 miles per hour. At that rate, how long will it take him to drive 275 miles?
 - 4 hours
 - 5 hours
 - 6 hours
 - 7 hours
- Callie's family spends an average of \$70 per month on electricity. At that rate, what can Callie's family expect to pay for electricity over 1 year?
 - \$70
 - \$480
 - \$700
 - \$840
- Mandy is on a bus that is traveling at a constant speed of 60 miles per hour. How far will she travel in $3\frac{1}{2}$ hours?
 - 185 miles
 - 195 miles
 - 210 miles
 - 230 miles
- A party mix has 8 ounces of pretzels, 3 ounces of mini marshmallows, and 6 ounces of nuts. How many ounces of nuts are there for every ounce of pretzels?
 - $\frac{6}{17}$ ounce of nuts for 1 ounce of pretzels
 - $\frac{3}{8}$ ounce of nuts for 1 ounce of pretzels
 - $\frac{1}{2}$ ounce of nuts for 1 ounce of pretzels
 - $\frac{3}{4}$ ounce of nuts for 1 ounce of pretzels
- Nate biked 54 miles in $4\frac{1}{2}$ hours. What was Nate's average speed in miles per hour?
 - 11 miles per hour
 - 12 miles per hour
 - 13 miles per hour
 - 14 miles per hour

7. Which of the following does **not** have a unit price of \$24 for one sweater?

- A. \$38 for 2 sweaters
- B. \$72 for 3 sweaters
- C. \$96 for 4 sweaters
- D. \$120 for 5 sweaters

8. Fred's car can travel 368 miles on one tank of gas. His gas tank holds 16 gallons. What is the unit rate for miles per gallon?

- A. 22 miles per gallon
- B. 23 miles per gallon
- C. 26 miles per gallon
- D. 28 miles per gallon

9. A soup recipe uses 6 cups of water, 4 cups of tomato sauce, and 5 cups of tomato puree.

A. How many cups of tomato sauce are there for every cup of water?

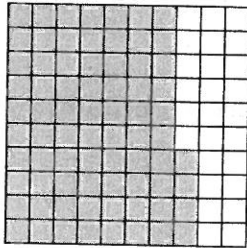
B. If 4 cans of tomato sauce cost \$2, what is the unit price for 1 can of tomato sauce?
Show your work.



Lesson Practice

Choose the correct answer.

1. What percent of the grid is shaded?



- A. 0.74%
B. 7.4%
C. 74%
D. 740%
2. Which fraction is equal to 30%?
- A. $\frac{3}{100}$
B. $\frac{1}{30}$
C. $\frac{3}{10}$
D. $\frac{1}{3}$
3. Which decimal is equal to 42%?
- A. 0.42
B. 4.2
C. 42
D. 420
4. There are 25 students performing in the holiday concert. Of the students, 11 are boys. What percent of the students are boys?
- A. 44%
B. 48%
C. 52%
D. 56%
5. What is 38% of 560?
- A. 21.28
B. 212.8
C. 213
D. 224
6. 435 is 15% of what number?
- A. 6.525
B. 65.25
C. 2,900
D. 29,000

7. Cecilia created 2.5 liters of a chemical mixture for an experiment. Saline solution accounted for 12.5% of the mixture. How many liters of saline solution were in the mixture?
- A. 0.3125 liter
 - B. 2.1875 liters
 - C. 3.125 liters
 - D. 31.25 liters
8. As part of a class project, Mesut collected \$126 in donations for a local hospice. That amount was 7% of the total amount collected by the class. How much money did the class collect in all?
- A. \$167.40
 - B. \$180
 - C. \$1,674
 - D. \$1,800
-
9. Last year, a state university received 3,560 applications from boys. Of those applications, 35% were from boys who lived in other states.
- A. How many applications did the university receive from boys who lived in other states?
-
- B. Applications to the university from boys represented 40% of all applications. How many applications did the university receive in all? Explain how you found your answer.
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Lesson Practice

Choose the correct answer.

- Dean's car weighs $1\frac{1}{4}$ tons. How many pounds does his car weigh?
 - 2,000 lb
 - 2,125 lb
 - 2,375 lb
 - 2,500 lb
- A wooden board is 3 yards 1 foot long. Which shows an equivalent length?
 - 37 ft
 - 31 ft
 - 10 ft
 - 7 ft
- A bottle of water has a capacity of 750 milliliters. Which is an equivalent measure in liters?
 - 7,500 L
 - 75 L
 - 7.5 L
 - 0.75 L
- A package weighs 4.25 kilograms. How many grams does the package weigh?
 - 0.0425 g
 - 425 g
 - 4,250 g
 - 42,500 g
- Julie's cell phone is 9 centimeters long. How many millimeters long is her cell phone?
 - 0.9 millimeters
 - 90 millimeters
 - 900 millimeters
 - 9,000 millimeters
- Amy needs to fill a barrel with $4\frac{1}{4}$ gallons of water. She only has a quart container. How many times will she need to fill the quart container in order to get $4\frac{1}{4}$ gallons of water into the barrel?
 - 34
 - 20
 - 17
 - 16

7. Michael will be running a 15-mile road race this weekend. How many feet will he run?

- A. 26,400 feet
- B. 26,700 feet
- C. 78,900 feet
- D. 79,200 feet

8. Melissa made 164 fluid ounces of lemonade for a party. How many cups of lemonade did Melissa make?

- A. $10\frac{1}{4}$ cups
- B. $20\frac{1}{4}$ cups
- C. $20\frac{1}{2}$ cups
- D. 21 cups

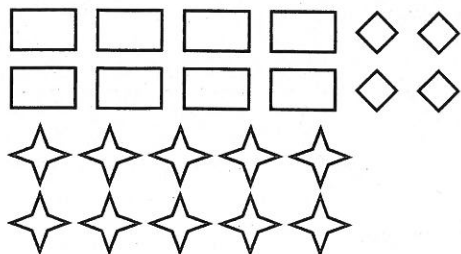
9. Brendan's dog has a mass of 25,700 grams.

A. What is the dog's mass in milligrams?

B. What is the dog's mass in kilograms? Explain how you found your answer.

Domain 2: Cumulative Assessment for Lessons 12–16

Use the diagram for questions 1 and 2.



- In simplest form, what is the ratio of rectangles to stars?
 - 1:2
 - 4:5
 - 2:1
 - 5:2
- Which is **not** another way to express the ratio of all figures to rectangles?
 - 11 to 4
 - 11:4
 - $\frac{11}{4}$
 - $2\frac{3}{4}$
- 24 is 16% of what number?
 - 0.384
 - 15
 - 38.4
 - 150
- Which value of x will make these ratios equivalent?

$$\frac{25}{30} = \frac{5}{x}$$
 - 20
 - 10
 - 6
 - 5
- A recipe for 4 loaves of bread uses 3 tablespoons of honey. How much honey is needed for 24 loaves of bread?
 - 6 teaspoons
 - 8 teaspoons
 - 12 teaspoons
 - 18 teaspoons
- Which of the following does **not** have a unit rate of \$14 for one CD?
 - \$28 for 2 CDs
 - \$45 for 3 CDs
 - \$56 for 4 CDs
 - \$70 for 5 CDs
- A banana cream pie recipe uses 8 ounces of cream cheese, 14 ounces of condensed milk, and 12 ounces whipped topping. In simplest form, how many ounces of cream cheese are there for every ounce of condensed milk?
 - $\frac{4}{7}$ ounce
 - $\frac{1}{4}$ ounce
 - $\frac{4}{13}$ ounce
 - $\frac{2}{3}$ ounce

8. Miley drove 288 miles in $4\frac{1}{2}$ hours. What was Miley's average speed in miles per hour?
- A. 58 miles per hour
 - B. 52 miles per hour
 - C. 64 miles per hour
 - D. 66 miles per hour

9. The Shakespeare festival produced by a local theater company was attended by 14,350 people, of whom 28% were high school students. How many high school students attended the Shakespeare festival?
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10. The table shows the teaspoons of salt and of sugar in a recipe.

Sugar and Salt in a Recipe

Teaspoons of Salt (x)	2	4	6	8
Teaspoons of Sugar (y)	3	6	9	?

- A. How many parts of sugar should be used with 8 parts of salt?
- B. Plot the ordered pairs from the table on the coordinate grid.

