

## Answer Key

### 6.RP.1

1.) 3:5

2.) Student explanations may vary, but students should understand that the ratio of income is 8:5. This means, for example, that if Jane's income is \$800, then Maria's income is \$500. Since Jane's income is \$400, and \$800 is 2 times \$400, this means you have to divide the ratio by 2 to get an answer. If Jane is earning \$400, Maria will earn  $\$500 \div 2 = \$250$ . Jane's income is greater than Maria's by \$150 ( $400 - 250$ ).

3.) 12:15

4.) 25:23

5.)

2	4	8	16	32	64
4	8	16	32	64	128

6.) Student explanations may vary, but students should understand that the ratio of the number of pencils bought by Harry and John is given as 2:6 or 1:3. This implies that for every 1 pencil Harry buys, John buys 3 pencils. If Harry buys 16 pencils John will buy 48 pencils ( $16 \times 3$ ). Therefore, John bought 48 pencils.

7.) 1:2

8.) 108:97

9.) 5:9

10.) Annie will need 5 cups of flour and 3 cups of sugar for the 2 cups of chocolate that she has.

### 6.RP.2

1.) The rate is \$2.00 per hour.

2.) Anna can color 2 squares in 40 seconds.

3.) Student explanations may vary, but students should understand that the number of bricks required to build two walls is 900 bricks. If you divide 900 by 2, you find that it takes 450 bricks to build one wall,  $450 \times 6$  walls equals 2,700 bricks for the 6 walls. The cost of each brick is \$0.10, and for 2,700 bricks this equates to \$270. In addition to the cost of bricks is the cost of labor. If one wall of labor is \$50, then six walls is \$300. Add together the cost of the bricks (\$270) plus the cost of labor (\$300), building the six walls would be \$570.

4.) \$8 for 2 tickets

5.) 200 potatoes

6.) 96 yards of fabric cost \$288, the cost per yard of fabric is \$3.00.

7.) 960 words per hour

8.) 5 hours

9.) \$40 for 600 minutes

10.) Student explanations may vary, but students should understand that since the problem states that the same number of tournaments were played over the course of two years, there were 52 tournaments played in each of the years. Since 1 tournament is 3 games, there was a total of 156 games played each year. If 55 games were won in the first year, 156 total games played - 55 games won equals 101 games lost in one year. If 103 games were won in the second year, 156 total games played - 103 games won equals 53 games lost in the second year. Over the two years, the team lost 154 games ( $101 + 53$ ) and won 158 games ( $55 + 103$ ), meaning that the number of games won is greater than the number of games lost.

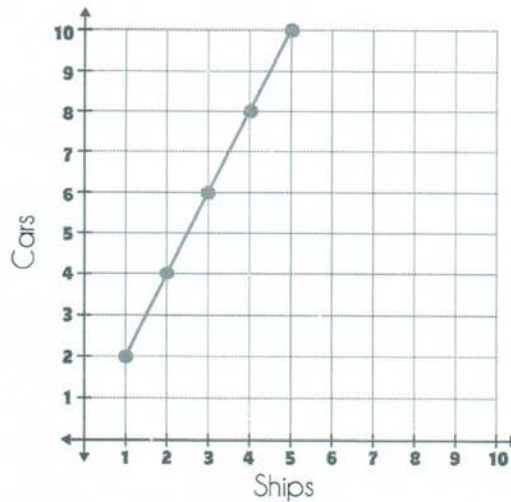
# Answer Key

## 6.RP.3

1.) 100 jumps

2.)

Ships	1	2	3	4	5
Cars	2	4	6	8	10



3.) Student explanations may vary, but students should understand that you can add the percentages given (14% of yellow pens + 34% of green pens) for a total of 48%. You can subtract 48% from 100% to find the remaining percentage, which is 52%. 52% of 200 pens equals 104 blue pens.

4.) These ratios are equal. Students can justify their answers by reducing the ratio to its simplest form.

5.) 20% off of \$50 is a \$10 savings

6.) 75 windows in 15 days

7.) Students should show each person's individual ratio of postcards to pens. The ratio of postcards to pens for Christie is 18:8, simplified to 9:4; Brad's is 30:12, simplified to 5:2; Tom's is 20:10, simplified to 2:1. Since it is difficult to compare these ratios, students should convert each ratio to an equivalent percent in order to solve the problem. Christie's 9:4 equates to 2.25 or 225%, Brad's 5:2 equates to 2.5 or 250%, and Tom's 2:1 equates to 200%. Therefore Brad has the highest ratio of postcards to pens, and Tom has the lowest.

8.) The percentage off for the chocolate candles is 20%, the percentage off for the ice-cream is 10%.

9.) Student explanations may vary, but students should understand that Joe uses 2.5 pounds of flour for every 1 pound of sugar. Jenny uses 3 pounds of flour for every 1 pound of sugar. Therefore, Jenny's ratio of flour to sugar is greater.

10.) 2 kilometers in 1 hour



6.RP.1 1. 4:3 2. 4:12 3. 15:31 4. 7:12	6.RP.2 1. 5 2. 63 3. 2:1 4. 20	6.RP.3 1. Joe 2. 18 3. 4 pack 4. \$10 off	6.NS.1 1. $\frac{2}{3}$ 2. 2 3. $\frac{3}{16}$ 4. 3.1332 or 3.333/2500 mpg	6.NS.2 1. 42 2. 129 3. 34 4. 8	6.NS.3 1. 16.54 2. 8.85 3. 19.32 4. 7	6.NS.6 1. See student graph 2. 3 3. -6 4. Quadrant IV	6.NS.7 1. $x \leq 5$ 2. $3.9 - 3.6/20 > -3.2/10$ 3. 4.7 4. $-5.13/26 < 2/4 < 6/10$	6.NS.8 1. 4 2. See student graph 3. (6,9) 4. Square	6.EE.1 1. 25 2. 1024 3. 134 4. $9^4 = 6561$	6.EE.5 1. c-9 2. $t \geq 2$ 3. $r+16$ 4. 7	6.EE.6 1. $b+69$ 2. $9-4=5$ 3. 2 4. $C=17+5$	6.EE.7 1. $h=0+h$ 2. $3v+15$ 3. $28+36v$ 4. Associative	6.EE.8 1. $3q$ 2. $4j$ 3. $3(9+3a+5/3a)$ 4. 6t	6.EE.9 1. $x=2w, x=10$ 2. $y=2x+1$ 3. $x=2y$ 4. $x=2y, y=4$	6.G.1 1. 323 mm 2. 24 m 3. 8.5 m 4. 79 km	6.G.2 1. 40 2. 63 3. 60 4. 66	6.G.3 1. (2, -3) 2. $6 \times 5$ 3. 30 4. 22	6.SP.1 1. median-2166.05, mean-2306.85 2. Mean 3. Center-32 Spread-7 4. Mean31.4, Median32, Mode32, Range7	6.SP.2 1. 43.5, 8 2. 14 3. Mean60, Median60, Mode50+80, Range50 4. Mean54, Median50, Range90	6.SP.4 See Last Page
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Name: Answer Key Date: \_\_\_\_\_ Period: \_\_\_\_\_

I can understand the concept of a ratio and use ratio language to describe a relationship between two quantities.

\* Correct: \_\_\_\_\_ Grade: \_\_\_\_\_  
Read each comparison below and describe the relationship between the two quantities using a ratio.

<p>1 It takes 5 workers a total of 55 hours to build a house.</p> <p><b>5:55 or 1:11</b></p>	<p>2 While working on a project it takes 2 students a total of 3 hours.</p> <p><b>2:3</b></p>	<p>3 Each weekend it takes mom 14 hours to do 7 loads of laundry.</p> <p><b>14:7 or 2:1</b></p>
<p>4 While feeding the dogs, Austin noticed that the bag stated that each dog should receive <math>1\frac{1}{2}</math> cups of food.</p> <p><b>1:1.5</b></p>	<p>5 Each work week consist of 5 days and 40 hours.</p> <p><b>5:40 or 1:8</b></p>	<p>6 Dixon drove 234 miles in 4 hours to see his Grandma.</p> <p><b>234:4</b></p>
<p>7 For every 2 red pieces of licorice there are 4 black piece of licorice.</p> <p><b>2:4 or 1:2</b></p>	<p>8 Steven can solve 6 math problems in 36 minutes.</p> <p><b>6:36 or 1:6</b></p>	<p>9 Devin works at the school store and sells 7 pencils for every 2 red pens.</p> <p><b>7:2</b></p>
<p>10 During the last two weeks, Carlos spent 210 minutes working in his yard.</p> <p><b>2:210 or 1:105</b></p>	<p>11 Brittany sells 6 cans of Coca-Cola for every 2 cans of Sprite at the concession stand.</p> <p><b>6:2 or 3:1</b></p>	<p>12 On a math quiz only 7 students out of 17 got the correct answer on the bonus question.</p> <p><b>7:17</b></p>

Standard: 6.RP.1

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Name: Answer Key Date: \_\_\_\_\_ Period: \_\_\_\_\_

I can understand the concept of a unit rate  $a/b$  associated with a ratio  $a/b$  when  $b \neq 0$  and use rate language in the context of a ratio relationship.

# Correct: \_\_\_\_\_ Grade: \_\_\_\_\_

Read each word problem below and answer with the appropriate ratio in fraction form.

<p>1 Lester wanted to make a batch of trail mix for the weekend he would be camping. The recipe makes a total of 6 servings and contains 3 cups of cereal. Based on the recipe, how much cereal would be in one serving?</p> <p><b><math>\frac{1}{2}</math> cup</b></p>	<p>2 When baking a batch of cupcakes, it takes 3 cups of flour for every 4 cups of sugar. If Bailey makes 4 batches of cupcakes, how much sugar will she use?</p> <p><b>16 cups</b></p>	<p>3 For every 4 problems that Ashley answers on the test, she has one that she has a question on. If there are 20 questions on the test, how many will she have a question on?</p> <p><b>5</b></p>
<p>4 Sam uses 3 cups of popcorn kernels to make 24 quarts of popcorn. What would the ratio of kernels to popcorn be in simplest form?</p> <p><b><math>\frac{1}{8}</math></b></p>	<p>5 During a school trip there were a total of 9 adults and 75 students evenly split on three buses. Based on this information what would the ratio of adults to students be per bus?</p> <p><b>3:25</b></p>	<p>6 The drama club at school has a total of 24 students. If there are 16 girls, what is the ratio of boys to girls in simplest form?</p> <p><b>2:1</b></p>
<p>7 A box of Ritz crackers contains 6 servings and has a total of 480 calories. How many calories would be in one serving?</p> <p><b>80 calories</b></p>	<p>8 Amanda's recipe calls for 4 cups of chocolate chips to every 2 cups of sugar. Based on this, how many cups of chocolate chips would be used per cup of sugar?</p> <p><b>2 cups</b></p>	<p>9 After going on a run, Tanner measured his heart rate at 15 beats per 10 seconds. Based on this rate, how fast is his heart beating in one minute?</p> <p><b>90 bpm</b></p>
<p>10 Jackson has seven steals per basketball game. If he played in 23 basketball games, how many total steals would he have?</p> <p><b>161 steals</b></p>	<p>11 Sarah's recipe calls for <math>1\frac{1}{2}</math> cups of mix to make 8 pancakes. If Sarah wants to make 12 pancakes, how many cups of mix would she need to use?</p> <p><b><math>2\frac{1}{4}</math> cups</b></p>	<p>12 If Damian is able to read 80 pages in 2 hours, how long does it take for him to read each page?</p> <p><b><math>1\frac{1}{2}</math> minutes</b></p>

Standard: 6.RP.2

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Name: Answer Key Date: \_\_\_\_\_ Period: \_\_\_\_\_

# Correct: \_\_\_\_\_ Grade: \_\_\_\_\_

I can make tables of equivalent ratios relating quantities with whole-number measurements, and find missing values in the tables.

Find the missing values in each table below. Write the ratio in simplest form next to the table.

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Name: Answer Key Date: \_\_\_\_\_ Period: \_\_\_\_\_

# Correct: \_\_\_\_\_ Grade: \_\_\_\_\_

I can solve unit rate problems including those involving unit pricing and constant speed.

*Read each word problem. Determine the unit rate for the given ratio.*

<p>1 The same brand of jelly beans comes in 2 sizes: a 10 ounce bag for \$1.99 and an 18 ounce bag for \$2.99. Which size is the better buy per ounce?</p> <p><b>18 ounce bag</b></p>	<p>2 If bananas cost 58¢ per pound at the grocery store when Anna went, how much would she pay for a total of 5 pounds of bananas?</p> <p><b>\$2.90</b></p>	<p>3 Mona's car can go 200 miles on 8 gallons of gas. How far will Mona's car go on 1 gallon of gas?</p> <p><b>25</b></p>
<p>4 Jarrod bought a new wide-screen television that has a screen width of 32 inches and height of 18 inches. What is the aspect ratio of the screen?</p> <p><b>16:9</b></p>	<p>5 Blank DVDs can be purchased in packages of 3 DVDs for \$4.99 or 10 DVDs for \$15.49. Which is the better buy?</p> <p><b>10 pack</b></p>	<p>6 Luisa is at the grocery store and sees that she can purchase a 64 ounce bottle of tea for \$2.49 or a 96 ounce bottle for \$3.99. Which is the better buy?</p> <p><b>64 ounce bottle</b></p>
<p>7 Elena timed herself to see how many words she could type in 5 minutes. When the timer went off, the document had a total of 175 words typed. How many words can she type per minute?</p> <p><b>35 wpm</b></p>	<p>8 Steven worked for a total of 20 hours this week at Pizza Hut. His paycheck, with tips, was \$525. Approximately how much money did Steven make per hour this week?</p> <p><b>\$26.25</b></p>	<p>9 Rachel can shelf 825 books in an 8 hour work day. Approximately how many books can she shelf in one hour?</p> <p><b>103 books</b></p>
<p>10 Tina loves to decorate cookies. She had a big order of 225 cookies to decorate. It took Tina <math>3\frac{1}{2}</math> hours to decorate all of the cookies. Approximately how long did it take her per cookie?</p> <p><b>1.07 minutes</b></p>	<p>11 Maddy was at the store to buy dog food for her new puppy. A 4-lb bag is \$5.49 and an 18-lb bag is \$18.79. Which bag of dog food is the better buy?</p> <p><b>18-lb bag</b></p>	<p>12 Cherie is traveling a constant speed of while on a road trip. If she traveled 846 miles in 13 hours, approximately how fast was she traveling?</p> <p><b>65 mph</b></p>

Standard: 6.RP.3b

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Name: Answer Key Date: \_\_\_\_\_ Period: \_\_\_\_\_

# Correct: \_\_\_\_\_ Grade: \_\_\_\_\_

I can find a percent of a quantity as a rate per 100.

*Read each word problem. Use a proportion to determine the missing percent.*

<p>1 The Earth's surface area is approximately 197 million square miles. About 139 million square miles are covered by water. What percent of the Earth's surface is covered in water?</p> <p><b>70.55%</b></p>	<p>2 Bailey is writing an essay for her History class. Her paper is supposed to be 15 pages long. She has written 9 pages so far. What percent has Bailey written of her History paper?</p> <p><b>60%</b></p>	<p>3 Jamie is reading a book that is 347 pages long. He is currently on page 203. What percent of the book does Jamie still have left to read?</p> <p><b>41.5%</b></p>
<p>4 At Court Club Gymnastics 6 of the 25 girls are new to the gymnastics team. What percent of the girls on the team are new?</p> <p><b>24%</b></p>	<p>5 While shooting free-throws, Austin attempted 42 shots. Of the shots that Austin attempted, he made 34 of the shots. What percent of the shots did Austin make?</p> <p><b>81%</b></p>	<p>6 The 6<sup>th</sup> grade students at Wilson Middle School has a total of 120 students. Of these students, 54 of them are girls. What percent of the 6<sup>th</sup> Grade class are boys?</p> <p><b>55%</b></p>
<p>7 Mr. Roberts was grading quizzes. Of his 32 students, 8 of them missed question 7. What percent of Mr. Robert's students did not miss question 7?</p> <p><b>75%</b></p>	<p>8 During an awards ceremony there were a total of 397 students who received an award. All of the 201 athletes received an award for participation in sports. What percent of the middle school participates in athletic events?</p> <p><b>50.63%</b></p>	<p>9 Out of the 24 houses on Becker Street, 16 of them own a dog. What percent of the houses on Becker Street have a dog for a pet?</p> <p><b>66.67%</b></p>
<p>10 The choir at RMS has a total of 214 members. Of these members, there are 71 7<sup>th</sup> graders and the remaining are 8<sup>th</sup> graders. What percent of the RMS choir are 7<sup>th</sup> graders?</p> <p><b>33%</b></p>	<p>11 Last year The Little Dribblers won 35 out of their 40 games. What percent of the games did The Little Dribblers win?</p> <p><b>87.5%</b></p>	<p>12 Of the 225 students at Cooper Middle School, 178 of them are planning to attend college. What percent of the students are already planning to attend college?</p> <p><b>79.1%</b></p>



Name: Answer Key Date: \_\_\_\_\_ Period: \_\_\_\_\_

I can solve problems involving finding the whole, given a part and a percent.

\* Correct: \_\_\_\_\_ Grade: \_\_\_\_\_  
Use a proportion to determine the missing number.

1 What number is 27% of 52?  <b>14.04</b>	2 57% of 225 is what number?  <b>128.25</b>	3 What number is 68% of 312?  <b>212.16</b>
4 98% of 192 is what number?  <b>188.16</b>	5 What number is 31% of 214?  <b>66.34</b>	6 4% of 987 is what number?  <b>39.48</b>
7 What number is 62% of 128?  <b>79.36</b>	8 49% of 72 is what number?  <b>35.28</b>	9 What number is 115% of 230?  <b>264.5</b>
10 36% of 82 is what number?  <b>29.52</b>	11 What number is 14% of 53?  <b>7.42</b>	12 81% of 42 is what number?  <b>34.02</b>

Standard: 6.RP.3c

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Name: Answer Key Date: \_\_\_\_\_ Period: \_\_\_\_\_

# Correct: \_\_\_\_\_ Grade: \_\_\_\_\_

I can use ratio reasoning to convert measurement units.

*Read each statement below and use a proportion to make an accurate conversion.*

1 Convert 5 miles to feet.  <b>26,400</b>	2 Convert 32 fluid ounces to pints.  <b>2 pints</b>	3 Convert $1\frac{1}{2}$ tons to pounds.  <b>3,000 pounds</b>
4 Convert 13,200 feet to miles.  <b><math>2\frac{1}{2}</math> miles</b>	5 Convert 400 feet to inches.  <b>4,800 inches</b>	6 Convert 3 gallons to fluid ounces.  <b>64 ounce bottle</b>
7 Convert 144 quarts to pints.  <b>72 pints</b>	8 Convert 288 inches to feet.  <b>24 feet</b>	9 Convert 30,000 pounds to tons.  <b>5 tons</b>
10 Convert 57 gallons to quarts.  <b>228 quarts</b>	11 Convert 320 fluid ounces to pints.  <b>20 pints</b>	12 Convert 1400 pounds to ounces.  <b>22,400 ounces</b>



# Unit Rates

## Partner Matchup

Directions: Work in groups of two. One partner solves column #1, while the other partner solves column #2. Then, get together and match your answers! If you don't have a match, rework the problems.

Partner #1	Partner #2
--E-- 1. 100 words typed in 5 minutes	A. 34 cookies eaten in 3 minutes
--H-- 2. \$9.95 for 5 pounds	B. 100 words typed in 10 minutes
--F-- 3. 13 cookies eaten in 60 seconds	C. \$16.68 for 4 pounds
--G-- 4. 720 miles traveled in 3 days	D. 614.4 miles traveled in 12.8 hours
--I-- 5. 1500 miles in 2.5 days	E. 300 words typed in 15 minutes
--B-- 6. 45 words typed in 4.5 min	F. 45.5 cookies eaten in 3.5 minutes
--D-- 7. 360 miles traveled in 7.5 hrs	G. 1320 miles traveled in 5.5 days
--C-- 8. \$12.51 for 3 pounds	H. \$5.97 for 3 pounds
--J-- 9. 880 miles traveled in 16 hrs	I. 18120 miles traveled in 13.2 days
--A-- 10. 8.5 cookies eaten in 45 sec.	J. 728.75 miles traveled in 13.25 hours

## ANSWER KEY

- |                        |                   |
|------------------------|-------------------|
| 1. 28 boys             | 9. 108 games      |
| 2. 16 miles per gallon | 10. \$4.13        |
| 3. 60 pages            | 11. \$47.60       |
| 4. 160 houses          | 12. \$111         |
| 5. 750 miles           | 13. 1.875 cups    |
| 6. 84%                 | 14. 18.75 gallons |
| 7. 464 miles           | 15. 157 pounds    |
| 8. \$0.36 per can      | 16. 112.5 pounds  |

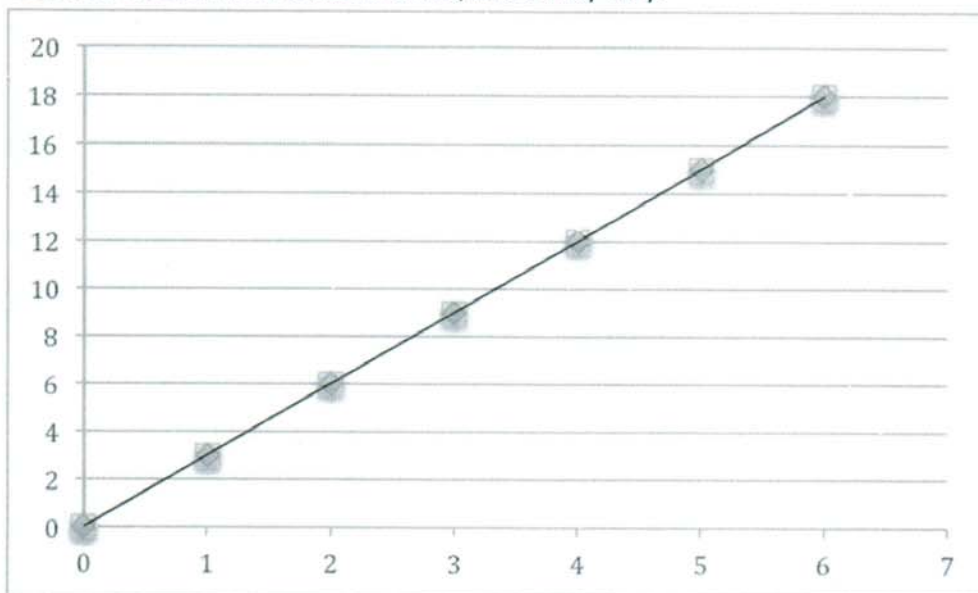


ANSWERS:

TABLE -->

Hours	Total Necklaces
0	0
1	3
2	6
3	9
4	12
5	15
6	18

Teachers should check student labels, these may vary:



- 1) More than 1 hour
- 2) 15 necklaces
- 3) 6 hours
- 4) Answers may vary
- 5) 20 hours
- 6) Picture will be a dog with an extra leg

7) 2 ears to 4 legs --> 1 ear to 2 legs

8) Adidas cost \$25 per soccer ball (Wilson is \$24 per ball)

9) Babysitting is \$12 per hour (\$11 per hour of cleaning)