# **Ratios and Proportions Comprehension Check**

1. What is a ratio? Write the ratio 3 cups of tea for every 2 guests in two different ways.
2. Use what you know about equivalent ratios to solve the following problem. If the ratio of chocolate chips to cookies is 8 to 1, how many chocolate chips would there be in 3 cookies? How many cookies are there if there are exactly 60 chocolate chips?
3. What is a unit rate? Provide an example to support your answer.
4. Margo sells 3 bracelets for $4 and Jon sells 4 bracelets for $5. Who sells the cheapest bracelets? How do you know?

|  |  |
| --- | --- |
| Margo’s Bracelets | |
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| --- | --- |
| Jon’s Bracelets | |
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1. What are proportional relationships?
2. What is a proportion? Solve this proportion for the variable, or unknown value: .
3. Right now, the grocery store has a deal: you can purchase 4 smoothies for a total of $5. Use what you know about unit rates to help you determine how much 5 smoothies will cost.
4. Use the following problem to show how to find a percent of a given whole number. What is 20% of 50?
5. What percent of 25 is 15?
6. Currently, my travel mug contains 4 ounces of coffee and is 25% full. How much coffee can my entire mug hold?

# **Ratios and Proportions Comprehension Check**

1. What is a ratio? Write the ratio 3 cups of tea for every 2 guests in two different ways.
   1. A ratio is a comparison between two amounts, or quantities. The ratio 3 cups of tea for every 2 guests can be written as 3:2 or .
2. Use what you know about equivalent ratios to solve the following problem. If the ratio of chocolate chips to cookies is 8 to 1, how many chocolate chips would there be in 3 cookies? How many cookies are there if there are exactly 60 chocolate chips?
   1. In order to solve this problem, it can be helpful to think about equivalent ratios, or even equivalent fractions. The ratio 8 to 1 can be rewritten as which is equivalent to both and , so we know that 3 cookies would have a total of 24 chocolate chips, and 40 chocolate chips represents exactly 5 cookies.
3. What is a unit rate? Provide an example to support your answer.
   1. A unit rate is a ratio that compares a quantity to one unit. For example, you might eat 3 vegetables per day. This is considered a unit rate because you are comparing the number of vegetables you eat to one day.
4. Margo sells 3 bracelets for $4 and Jon sells 4 bracelets for $5. Who sells the cheapest bracelets? How do you know?
   1. One way to solve this problem is by creating and completing two ratio tables:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Margo’s Bracelets | | | | |
| 3 bracelets | 6 bracelets | 9 bracelets | 12 bracelets | 15 bracelets |
| $4 | $8 | $12 | $16 | $20 |

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| --- | --- | --- | --- |
| Jon’s Bracelets | | | |
| 4 bracelets | 8 bracelets | 12 bracelets | 16 bracelets |
| $5 | $10 | $15 | $20 |

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* 1. Although these tables do not show unit rates, we can compare the ratios they represent by looking for the ratios with one of the same values. For example, if you spend $20 you can get 15 bracelets from Margo but 16 from Jon, so we can say Jon sells the cheapest bracelets.

1. What are proportional relationships?
   1. A proportional relationship is one in which the ratio between the quantities is constant, or always the same. For example, for cookies that cost $1.50 a piece, the ratio of cost to cookie will always be 1.50 to 1.
2. What is a proportion? Solve this proportion for the variable, or unknown value: .
   1. A proportion is an equation that relates to equivalent ratios. In the proportion we can solve for the value of by using what we know about equivalent fractions. We can multiply by to get the equivalent fraction of , so we can say .
3. Right now, the grocery store has a deal: you can purchase 4 smoothies for a total of $5. Use what you know about unit rates to help you determine how much 5 smoothies will cost.
   1. If 4 smoothies cost a total of $5, the unit rate for one smoothie is $1.25. We can use a ratio table to organize our thinking and determine the price of 5 smoothies as $6.25.

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| --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 |
| $1.25 | $2.50 | $3.75 | $5 | $6.25 |

1. Use the following problem to show how to find a percent of a given whole number. What is 20% of 50?
   1. In order to find 20% of 50, we can set up a proportion. . If we know 50 x 2 = 100, we must multiply the value of by 2 to get 20, so = 10.
2. What percent of 25 is 15? (Calculating Percents, p. 28-29)
   1. In order to solve this problem, we can set up a proportion. . Because 25 x 4 = 100, we can multiply 15 by 4 to determine the value of . 15 x 4 = 60, so 15 is 60% of 25.
3. Currently, my travel mug contains 4 ounces of coffee and is 25% full. How much coffee can my entire mug hold? (Finding the Whole from a Part or Percent, p. 30-31)
   1. Students should find the answer to be 16 ounces.
   2. There are many ways to solve this problem, including using proportions. One way to solve this problem is by using a ratio table:

|  |  |  |  |
| --- | --- | --- | --- |
| 4 ounces | 8 ounces | 12 ounces | 16 ounces |
| 25% full | 50% full | 75% full | 100% full |