HARDER Grade 6 Ratios and Rate

1. In a class of 27 students, the ratio of girls to boys is 3:6. Which of the following statements are true? (Circle the statements you think are true. If they are true then explain and if they are not, then correct them.)
2. We know exactly how many are in the class
3. We can figure out how many boys there would be in a class of 36 students
4. We know exactly how many boys are in the class
5. If I randomly choose 9 students from the class. I can expect that 3 will be girls
6. Half the class is female
7. The ratio of boys to girls is 6:3

Is it possible to have a ratio of 3:9 in a class of 27 students? Is it possible to have a ratio of 3:9 in a class of 36 students? What is the smallest class size for which we could have a ratio of 3:7?

1. If we paid $30 dollars for 6 hamburgers. What is the rate of hamburgers to price? If hot dogs are 3 for 5$, then how many hot dogs will $30 buy? If you have 20$ and want to be able to buy 10 ham sandwiches, what should the price of one sandwich be?
2. 15 pounds of gravel costs $150, but I only need 7 pounds. How much will it cost me? (adapted Lamon, 2012). 150 pounds of sand costs $15, but I only need 7 pounds. How much will it cost me?
3. Juanita participated in a walk-a-thon to raise money for her school. She recorded the total distance she walked at several different points in time, but a few of the entries got smudged and can no longer be read. The times and distances that can still be read are listed in the table below.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|

|  |  |
| --- | --- |
| **Time in hours** | **Miles walked** |
| **1** |  |
| **2** | **4** |
|  | **8** |
| **5** |  |

 |  |

Assume Juanita walked at a constant speed. Complete the table and plot Juanita’s progress in the coordinate plane.

How fast was Juanita walking in miles per hour? How many hours did it take Juanita to walk one mile? How many minutes and seconds did it take? Suppose that during the 6th hour Juanita got tired and walked at only half the speed she had been traveling previously. What would her total distance be after 6 hours?

5. If it took 6 hours to mow 5 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed? How many minutes and seconds does it take to mow one lawn?

*How do your answers change with this?*

 If it took 5 hours to mow 6 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed? How many minutes and seconds does it take to mow one lawn?

6. Zack and James live 45 miles apart. Sometimes on a Saturday, they ride their bikes toward each other's houses and meet somewhere in between. Zack is a very consistent rider as he finds that his speed is always very close to 10 miles per hour. James rides more slowly than Zack, but he is working out and so he is becoming a faster rider as the weeks go by. On a Saturday in July, the two friends set out on their bikes at 8 am. Zack rides at 10 miles per hour, and James rides at 5 miles per hour. After one hour, how far apart are they? Make a table showing how far apart the two friends are after zero hours, one hour, two hours, and three hours. At what time will the two friends meet?

On a Saturday in August, both boys can now ride faster than before. However, Zack oversleeps and doesn’t get started until 10 am when he begins riding at a brisk pace of 15 mph. James starts at 8 am and they meet at 11am. At what speed did James ride?

7. Elaine bought a shirt on sale that was 25% less than the original price. The original price was $ 15 more than the sale price. What was the original price? Explain or show work.

Suzie bought a pair of pants. However, despite her mother’s warnings she did not go to WalMart but instead purchased these at the Fancy Mall teen shop where they were marked up by 20%. This means she paid an extra $10. What was the Wal Mart price for these pants?

8. The following shows the prices of 3 types of soup:

Bean with Bacon

Soup

5 oz. Can

$1.25

5 oz. can

$1.50

Cream of Mushroom Soup

.20 pound can

$1.30

Chicken Noodle

3.25 oz. can

 $1.50

Chicken

Noodle

3.25 oz. can

$1.30

Calculate the unit rate in ounces for each soup. Which soup is the priciest?

Cream of Mushroom Soup \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Chicken Noodle \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Bean with Bacon Soup \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

In addition to the Cream of Mushroom soup can above, the store also sells a bigger, one-pound can of Cream of Mushroom for $5.92.

Which can of the Cream of Mushroom Soup is the better deal? Show your work to justify your answer.

Suppose the company that makes the above soups were to create a 2-pound can of soup with equal parts cream of mushroom, chicken noodle and Bean with Bacon. They call it their potpourri soup. What do you suspect would be the price of such a soup? Why?