

Review for Ratio Unit Test – Be sure to show all work.

#### Ratio

1. The ratio of basketballs to soccer balls is 4:12. If there are 36 balls in total, how many are basketballs?
2. UNH wanted to bake the world record for largest cake. The recipe they are using for a normal sized cake uses 1 cup of sugar and 2.5 cups of flour. For the cake they are making, they're using 100 cups of sugar. How much flour do they need?
3. Mary could dribble a basketball 62 times in one minute at the beginning of her season. At the end of the season she could dribble the ball 186 times in a minute. How has she improved from start to end at dribbling?
4. In a drawing there are 7 circles, 6 squares, and 6 triangles. Write a part to part ratio and a part to whole ratio. Be sure to label them!

#### Value of the ratio

5. The local baker is cooking for a birthday party. He makes 50 cookies for every 25 cupcakes. What is the value of the cookie to cupcake ratio?
6. Find the value of the ratios:
  - a.  $\frac{1}{4}$
  - b.  $\frac{3}{60}$

#### Multiplicative Comparison

7. A library checks out 4 fiction books and 2 non-fiction books an hour. Write a ratio that compares non-fiction books to fiction books and then write a multiplicative comparison about them.
8. John picked 5 lbs of apples on Monday and 18 lbs of apples on Tuesday. How many times more apples did he pick on Tuesday than Monday? Write a ratio to solve.

#### Rates/Unit Rates

9. If it costs \$3.50 for 2 bags of candy, how much do 3 bags cost?
10. A race car can travel 1 mile in 3 minutes. How many miles could a race car travel in 1 full hour?
11. DK Khaled and DJ Khaled walk at different rates. DK Khaled walks 7 feet every 2 seconds, while DJ Khaled walks 8ft every 3 seconds. Write a rate for each person and then determine who walks the farthest in a minute.
12. Diego's son, Azul Perro, decided to take his dad on a trip to Togo on Father Day. He needed some cash though, so he went to the bank. In Togo they use West African CFA Francs. If Azul Perro got 10,000 West African CFA Francs for 17 US dollars, how many West African CFA Francs would he get for 1 US Dollar?

### Proportions

13. Determine if these ratios are equivalent:

a.  $\frac{35}{9}, \frac{105}{28}$

b. asdf

14. Solve for x by using cross products:

a.  $\frac{8}{x} = \frac{5}{40}$

15. Solve for x by simplifying and then scaling up or down:

a.  $\frac{50}{75} = \frac{x}{3}$

16. The Grumpy Cat fan store is selling Grumpy Cat merchandise. Since today is Grumpy Cat's birthday, they decided to charge an extra 37.5% on Grumpy Cat snapbacks. If the regular cost of a snapback is \$22.50, how much is it today?

17. Bill made a pancake using his favorite pancake mix. He puts in  $\frac{2}{8}$  cups of flour and  $1\frac{2}{6}$  cups of apple juice. If he put in 1 cup of flour, how many cups of apple juice does he need?

### Scale

18. You are drawing a table at a  $\frac{1}{6}$  scale. If the table is 2 feet across, how long will it be in the drawing?

19. On a map two cities are 3.4 inches apart. You know that they are 15 miles apart in real life. To what scale is the map drawn?

20. On the map the scale is 100ft to  $\frac{14}{16}$  in. What is the scale?

Please keep in mind that there is more than one way to solve. Sometimes I included a second way, but not always. If your solution isn't exactly like mine, that doesn't mean it is wrong. Just show your steps!

1.  $4:12$   $1:3$   } 36  $\frac{36}{4} = 9$  basketballs

2.  $\frac{1 \text{ cup of sugar}}{2.5 \text{ cups of flour}} \xrightarrow{\times 100} \frac{100 \text{ cups of sugar}}{250 \text{ cups of flour}}$

3. Now : Before  
 $186:62 \div 62 \rightarrow 3:1$

She is 3 times faster now than when she started. or 3 times more dribbles per minute.

4. 7 circles, 6 squares, 6 triangles total: 19 shapes  
 Part to part  
 circles : squares  $7:6$  squares : triangles etc...  
 $6:6$

Part to Whole  
 circles : whole  $7:19$  squares : whole etc...  
 $6:19$

5. cookie : cupcake  
 $50:25 \div 25 \rightarrow 2:1$

6. a)  $1:4 \div 4 \rightarrow .25:1$   
 or  $\frac{1}{4} = \frac{.25}{1}$

b)  $3:60 \div 60 \rightarrow .05:1$   
 or  $\frac{3}{60} = \frac{.05}{1}$

7. Non F : F  
 $\div 4 \left( \begin{array}{l} 2 : 4 \\ \frac{1}{2} : 1 \end{array} \right) \div 4$

At the library people check out  $\frac{1}{2}$  times as many non-fiction books as fiction.

8. Tues : Mon  
 $\div 5 \left( \begin{array}{l} 18 : 5 \\ 3.6 : 1 \end{array} \right) \div 5$

John picked 3.6 times more apples on Tuesday than he did on Mon.

9.  $\frac{\$3.50}{2 \text{ bags}} = \frac{\$1.75}{1 \text{ bag}} = \frac{\$5.25}{3 \text{ bags}}$

10.  $\frac{1 \text{ mile}}{3 \text{ min}} = \frac{20 \text{ miles}}{60 \text{ mins}}$   
 $\xrightarrow{\times 20}$

11. DK  $\xrightarrow{\times 30}$   
 $\frac{7 \text{ ft}}{2 \text{ sec}} = \frac{210 \text{ ft}}{60 \text{ sec}}$  \* Walks farthest in a minute

DJ  $\xrightarrow{\times 20}$   
 $\frac{8 \text{ ft}}{3 \text{ sec}} = \frac{160 \text{ ft}}{60 \text{ sec}}$   
 $\xrightarrow{\times 20}$

$$12. \quad \frac{10,000 \text{ f}}{\$17} = \frac{588.24 \text{ f}}{\$1}$$

$\xrightarrow{\div 17}$  (above the first fraction)  
 $\xrightarrow{\div 17}$  (below the second fraction)

$$13. \quad \frac{35}{9} \stackrel{?}{=} \frac{105}{28} \quad \text{No}$$

$$945 \neq 980$$

$$14. \quad \frac{8}{x} = \frac{5}{40}$$

$$5x = 320$$

$$x = 64$$

$$15. \quad \frac{50}{75} = \frac{x}{3}$$

$$\frac{2}{3} = \frac{x}{3}$$

$$2 = x$$

$$16. \quad \frac{37.5}{100} = \frac{x}{22.50}$$

$$100x = 843.75$$

$$x = \$8.44$$

$$\begin{array}{r} 22.50 \\ + 8.44 \\ \hline \end{array}$$

$\$30.94$

or

$$\frac{137.5}{100} = \frac{x}{22.50}$$

$$100x = 3093.75$$

$x = \$30.93$

$$17. \quad \frac{\frac{2}{8} \text{ cups of flour}}{\frac{2}{6} \text{ cups of AJ}} = \frac{1 \text{ cup of flour}}{X}$$

$$\frac{2}{6} = \frac{1}{3} = \frac{4}{12}$$

$$\frac{4}{3} \times \frac{4}{1} = \frac{16}{3} = 5\frac{1}{3} \text{ cups of Apple Juice}$$

$$18. \quad \frac{5}{6} = \frac{X}{2}$$

$$6x = 2$$

$$x = \frac{1}{3} \text{ ft} = 4 \text{ inches}$$

$$19. \quad \frac{5}{0} = \frac{3.4 \text{ m}}{15 \text{ miles}} = \frac{3.4 \text{ m}}{79200 \text{ ft}} = \frac{3.4 \text{ m}}{950400 \text{ m}} = \frac{1}{279,529}$$

$$20. \quad \frac{\frac{14}{16} \text{ m}}{100 \text{ ft}} = \frac{.875 \text{ m}}{1200 \text{ in}} = \frac{1}{1371.4}$$