

Name: KEY Date: _____ Block: _____**Math 8: Ratios, Rates & Proportion Practice Test****Show all work. Round answers to 2 decimal places and include units when required.**

1. Ms. Leslie's classroom has 16 desks, 30 chairs, 6 bulletin boards, 3 whiteboards, and one LCD projector. Write ratios to express the following (simplify if you can!): $16 + 30 + 6 + 3 + 1 = 56$

a) desks to chairs	$16:30 \rightarrow 8:15$
b) bulletin boards to whiteboards	$6:3 \rightarrow 2:1$
c) chairs to item's listed in Ms. Leslie's room	$30:56 \rightarrow 15:28$
d) chairs to desks to bulletin boards	$30:16:6 \rightarrow 15:8:3$
e) LCD projector to whiteboards to bulletin boards	$1:3:6$
f) desks to item's listed in Ms. Leslie's room	$16:56 \rightarrow 2:7$

2. Write 3 ratios equivalent to 12:21:33. Show what you did!

$$\begin{array}{ccc}
 12:21:33 & 12:21:33 & 12:21:33 & \dots \text{etc.} \\
 \div 3 \downarrow \downarrow \downarrow & \times 2 \downarrow \downarrow \downarrow & \times 10 \downarrow \downarrow \downarrow & \\
 4:7:11 & 24:42:66 & 120:210:330 &
 \end{array}$$

3. Find the missing number in each pair of equivalent ratios.

a. $60:5$ and $\frac{12}{?}:1$

$$\begin{array}{c}
 \xrightarrow{\quad} \xrightarrow{\quad} \\
 \div 5 \\
 60 \div 5 = 12
 \end{array}$$

b. $4:16:20$ and $16:\frac{64}{?}:80$

$$\begin{array}{c}
 \xrightarrow{\quad} \xrightarrow{\quad} \\
 \times 4 \\
 16 \times 4 = 64
 \end{array}$$

4. In a bag of Halloween candies, the ratio of Kit Kat bars to Mars bars is $\frac{7}{16}$. If there are 56 Kit Kat bars:

- a) How many Mars bars are there?

$$\begin{array}{c}
 7:16 \quad 56: \boxed{128 \text{ Mars bars}} \\
 \xrightarrow{\quad} \xrightarrow{\quad} \\
 \times 8 \qquad \qquad 16 \times 8 = 128
 \end{array}$$

b) How many chocolate bars total are there in the bag?

$$128 + 56 = \boxed{184 \text{ bars}}$$

5. Ken can walk 40 dogs in 8 hours. How many dogs can he walk in 12 hours? Please show work to justify your answer.

$$\frac{40 \text{ dogs}}{8 \text{ hrs}} = \frac{n}{12 \text{ hrs}} \quad \cancel{\frac{n}{8}} = \frac{480}{8} \quad n = \boxed{60 \text{ dogs}}$$

6. Ms. Dean took 10 hours to read a 260 page book. At this rate, how long will it take her to read a 400 page book?

$$\frac{260 \text{ pgs}}{10 \text{ hr}} = \frac{400 \text{ pgs}}{x} \quad \cancel{\frac{260x}{260}} = \frac{4000}{260} \quad x = \boxed{15.38 \text{ hours}}$$

7. A tap delivers water at a rate of 12 L/min. How long will it take to fill a pool with a volume of 4800 L?

$$\frac{12 \text{ L}}{1 \text{ min}} = \frac{4800 \text{ L}}{t} \quad \cancel{\frac{12t}{12}} = \frac{4800}{12} \quad t = 400 \text{ min}$$

$$= 400 \text{ min} \times \frac{1 \text{ hr}}{60 \text{ min}} = \text{(or } 6.\bar{6}\text{)}$$

$$= \boxed{6 \text{ hrs } 40 \text{ min}}$$

8. Express as a unit rate:

a) You score 84 points in 6 games. How many points do you score per game?

$$\frac{84 \text{ pts}}{6 \text{ games}} = \boxed{14 \text{ pts/game}}$$

b) A skydiver falls 44 meters in 3 seconds. How far does the skydiver fall per second?

$$\frac{44 \text{ m}}{3 \text{ s}} = \boxed{14.67 \text{ m/s}}$$

c) Marie walks 20 km in 3 hours. How many kilometres does she walk per hour?

$$\frac{20 \text{ km}}{3 \text{ hrs}} = \boxed{6.67 \text{ km/hr}}$$

d) A pump moves 160 litres in seven seconds. Find the unit rate.

$$\frac{160 \text{ L}}{7 \text{ s}} = \boxed{22.86 \text{ L/s}}$$

9. Determine the best deal for each scenario. Please show work to justify your answer.

- a) One bag of pretzels costs three dollars. Five bags of pretzels costs \$10. Which has the lower unit price?

$$\frac{\$3}{1 \text{ bag}}$$

$$\frac{\$10}{5 \text{ bags}} = \$2/\text{bag} \quad \text{Better deal!}$$

- b) It costs \$3.99 for 25 fl. oz. of detergent or \$6.99 for 90 fl. oz. Which is a better buy?

$$\frac{\$3.99}{25 \text{ oz}} = \$0.16/\text{oz}$$

$$\frac{\$6.99}{90 \text{ oz}} = \$0.08/\text{oz} \quad \text{Better deal!}$$

- c) Which is the best deal? 6 shirts for \$25.50 4 shirts for \$18.00 5 shirts for \$21

$$\frac{\$25.50}{6 \text{ shirts}}$$

$$= \$4.25/\text{shirt}$$

$$\frac{\$18.00}{4 \text{ shirts}}$$

$$= \$4.50/\text{shirt}$$

$$\frac{\$21}{5 \text{ shirts}}$$

$$= \$4.20/\text{shirt}$$

Best deal!

