

Unit 5: Percent, Ratio, and Rate

Name: _____

per 1

5.10 Comparing Rates – Worksheet

1. Write a unit rate for each statement.

- a) 560 km travelled in 7 h

$$\begin{array}{l} 560 \text{ km} : 7 \text{ hr.} \\ x : 1 \text{ hr} \\ \frac{7x}{7} = \frac{560}{7} \\ x = 80 \end{array}$$

- c) 280 words typed in 7 min

$$\begin{array}{l} \text{Words} : \text{min} \\ 280 : 7 \\ x : 1 \\ \frac{7x}{7} = \frac{280}{7} \\ x = 40 \end{array}$$

- b) 4 cans of beans for \$1.76

$$\begin{array}{l} \text{Cans} : \text{cost} \\ 4 : 1.76 \\ 1 : x \\ \frac{4x}{4} = \frac{1.76}{4} \\ x = 0.44 \end{array}$$

- d) \$786 earned in 6 weeks

$$\begin{array}{l} \$786 : 6 \text{ weeks} \\ x : 1 \\ \frac{6x}{6} = \frac{786}{6} \\ x = 131 \end{array}$$

2. Banana chips sell for 44¢ per 100 g.
How much would 450 g of banana chips cost?

$$\begin{array}{l} 0.44 : 100 \text{ g} \\ x : 450 \text{ g} \\ \frac{100x}{100} = \frac{198}{100} \\ x = 1.98 \end{array}$$

3. Which is the greatest average speed?

- a) 78 km in 3 h

$$\begin{array}{l} 78 : 3 \\ x : 1 \\ \frac{3x}{3} = \frac{78}{3} \\ x = 26 \end{array}$$

- b) 96 km in 4 h

$$\begin{array}{l} 96 : 4 \\ x : 1 \\ \frac{4x}{4} = \frac{96}{4} \\ x = 24 \end{array}$$

- c) 125 km in 5 h

$$\begin{array}{l} 125 : 5 \\ x : 1 \\ \frac{5x}{5} = \frac{125}{5} \\ x = 25 \end{array}$$

4. Which is the better buy?

- a) 5 oranges for \$1.65 or 8 oranges for \$2.77

$$\begin{array}{l} 5 : \$1.65 \\ 1 : x \\ \frac{5x}{5} = \frac{1.65}{5} \\ x = 0.33 \\ \$0.33/\text{orange} \end{array}$$

$$\begin{array}{l} 8 : 2.77 \\ 1 : x \\ \frac{8x}{8} = \frac{2.77}{8} \\ x = 0.35 \\ \$0.35/\text{orange} \end{array}$$

- b) 2 L of lemonade for \$2.56 or 1 L for \$1.32

$$\begin{array}{l} 2 \text{ L} : 2.56 \\ 1 : x \\ x = 1.28 \\ \$1.28/\text{L} \end{array}$$

- c) 3 kg of apples for \$5.70 or 2 kg for \$3.90

$$\begin{array}{l} 3 \text{ kg} : 5.70 \\ 1 \text{ kg} : x \\ x = 1.9 \\ \$1.90/\text{kg} \end{array}$$

$$\begin{array}{l} 2 \text{ kg} : \$3.90 \\ 1 \text{ kg} : x \\ x = 1.95 \\ \$1.95/\text{kg} \end{array}$$

5. A 2.5-kg bag of flour contains enough flour to make 4 cakes.

- a) How much flour is needed to make 50 cakes?

$$\begin{array}{l} 2.5 \text{ kg} : 4 \text{ cakes} \\ x : 50 \\ \frac{4x}{4} = \frac{125}{4} \\ x = 31.25 \end{array}$$

- b) How many bags of flour do you need?

$$31.25 \div 2.5 = 12.5$$

you will need 13 bags of flour.

a) has the greatest average speed of 26 km/hr

6. Ned types 360 words in 6 min.
Nate types 220 words in 4 min.
Who would type more words in 10 min?
What assumptions do you make?

Ned
words : min
360 : 6
x : 10

$$\frac{6x = 3600}{6 \quad 6}$$

$$\boxed{x = 600}$$

Nate
220 : 4
x : 10

$$\frac{4x = 2200}{4 \quad 4}$$

$$\boxed{x = 550}$$

Ned would type more words in 10 minutes.

7. In the first 8 games of the hockey season, Moira scored 26 goals.

- a) On average, how many goals did Moira score per game?

goals : games
26 : 8
x : 1

$$x = 3.25$$

Moira scored approx.
3 goals/game.

- b) At this rate, how many goals will Moira score in 20 games?

26 : 8
x : 20

$$x = 65$$

Moira will score 65 goals in 20 games.

8. The courier travelled 508 km in 8 h.

- a) What was the average speed?

508 km : 8 hr.
x : 1 hr

$$x = 63.5$$

64 km/hr.

- b) At this rate, how long will it take the courier to travel 889 km?

508 km : 8 hr.
889 km : x

$$\frac{508x = 7112}{508 \quad 508}$$

$$x = 14$$

It will take 14 hrs. to travel 889 km.

9. Benny's cat will eat 2 different brands of cat food. Brand A costs \$6.99 for a 1.3-kg bag.

Brand B costs \$16.99 for a 4.5-kg bag.

- a) Find the unit cost of each brand of cat food.

Which brand is the better buy?

Brand B is the better buy.

Brand A
\$6.99 : 1.3 kg
x : 1

$$\frac{1.3x = 6.99}{1.3 \quad 1.3}$$

$$x = 5.38$$

$$\$5.38/\text{kg}$$

Brand B
\$16.99 : 4.5 kg
x : 1 kg

$$\frac{4.5x = 16.99}{4.5 \quad 4.5}$$

$$x = 3.78$$

$$\$3.78/\text{kg}.$$

- b) Why might Benny not buy the brand in part a?

- Quality
- amount needed
- cat preference.