



Warm Up Grade 8

April 12, 2019



$$\begin{array}{l} \times 5 \quad \left(\begin{array}{l} 1 \text{ km} = 1000 \text{ m} \\ \downarrow \times 5 \\ 5 \text{ km} = 5000 \text{ m} \end{array} \right. \end{array}$$

$$1 \text{ hr} = 60 \text{ min} = 3600 \text{ s}$$

1. A human walks at an average speed of 5 km/h.
What is this speed in meters per second?

$$\frac{5 \text{ km}}{1 \text{ hr}} = \frac{5000 \text{ m}}{3600 \text{ s}} \div 3600 = \frac{1.38 \text{ m}}{1 \text{ sec}}$$

#5 $\$399 / 3 \text{ week}$
 $\div 3 \quad \div 3$
 $\$133 / 1 \text{ week}$

b) $680 \text{ km} / 8 \text{ h}$
 $\div 8 \quad \div 8$
 $85 \text{ km} / \text{hr}$

c) $\$3.49 / 12 \text{ bottle}$
 $\div 12 \quad \div 12$
 $\$0.29 / \text{bottle}$

d) $\$0.99 / 3 \text{ cans}$
 $\div 3 \quad \div 3$
 $\$0.33 / 1 \text{ can}$

☆) a) $\$24 / 3 \text{ hr}$
 $\div 3 \quad \div 3$
 $\$8 / \text{hr}$

$\$36 / 4 \text{ h}$
 $\div 4 \quad \div 4$

$\$9 / \text{h}$

greater

b) $\$4.50 / 6 \text{ muff}$
 $\times 2 \quad \times 2$
 $\$9. / 12 \text{ muff}$
 greater Rate

or

$\$6 \text{ for } 1 \text{ doz}$
 $\$6 \text{ for } 12 \text{ muff}$

Better deal

c) $0.99 / 250 \text{ mL}$
 $\times 4$
 $\$3.96 / 1000 \text{ mL}$
 $3.96 / 1 \text{ L}$
 greater

$3.49 / 1 \text{ L}$

Better deal

☆) 7) a) A $1.49 / 110 \text{ mL}$
 $\div 110 \quad \div 110$
 $\$0.0135 / \text{mL}$

B $\$4.29 / 500 \text{ mL}$
 $\div 500 \quad \div 500$

$0.00858 / \text{mL}$

d) cheaper \uparrow better deal

b) Might only need a small quantity

★ 8) \$ 1.99 / 5 gf or 2.99 / 8 gf
Estm Estm
\$ 16 / 40 \$ 15 / 40
Better deal

\$ 370 / 40 hr
÷40 ÷40

★ 11a) Petra \$ 370 for 40h 11a) Giorgos \$ 315 for 35h
÷40 ÷40 ÷35 ÷35
\$9.25 / hour \$9.00 / hour

Petra gets paid more

Comparing Rates

You can compare rates the same way that you compare ratios;

- Find the unit rate
- or find equivalent rates which have 1 of the terms the same.

Money goes 1st

Example:

Which is a better deal?

A - 2 apples for \$0.68 or B- 8 apples for \$2.60

- find the unit rate → 2nd term must be 1

\$ 0.68 / 2 Apples
÷ 2 ÷ 2
\$ 0.34 / 1 apple

\$ 2.60 / 8 Apples
÷ 8 ÷ 8
\$ 0.33 / 1 apple
Cheaper

Or

- change both to the cost for 8 apples

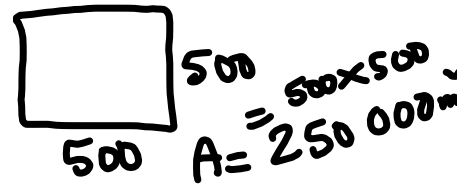
Make term "2" Apples the same

\$ 0.68 / 2 Apples
x 4 x 4
\$ 2.72 / 8 Apples

\$ 2.60 / 8 apples
Cheaper

Class/Homework

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#14, #16 (need to find area of the square park first)
 $2.5 \text{ kg} / 1200\text{m}^2 = X : 250\,000\text{m}^2$

16) $2.5 \text{ kg} / 1200\text{m}^2$ $\xrightarrow{\times 208.33}$

X $/$ $250\,000\text{m}^2$ $\xrightarrow{\times 208.33}$

520.83 kg

500m

$A = L \times W$
 $= 500 \times 500$
 $= 250\,000\text{m}^2$

$$\begin{array}{r} 2.5 \text{ kg} \\ \div 120 \end{array} \bigg/ \begin{array}{r} 1200\text{m}^2 \\ \div 120 \end{array}$$

$$\begin{array}{r} 0.00208\bar{3} \\ \times 250\,000 \end{array} \bigg/ 1\text{m}^2 \quad \xrightarrow{\times 250\,000}$$

$$\underline{520.83 \text{ kg}} \bigg/ 250\,000\text{m}^2$$

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1. A rate is the comparison of 2 units of measurement.

A unit rate has a second term of 1.

2. A ratio and a rate are similar since they both compare 2 things.

3. a) Yes, in Ex 3 $\frac{5000\text{km}}{60\text{sec}}$

b) No it can not be written as a percent because it is comparing 2 different things

c) Yes, in ex 3, it $83.\bar{3}\text{ m/min}$
or 1.4 m/sec

4. a) 60 words /min

b) 25 m /min

c) 20 pages /hr

5. a) 30 km in 2hr

15 km /hr

b) 12 km in 30min

24 km /hr

c) 150 km in 15min

10 km /min

600 km /hr

b) 220 flyers in 4 hours

$\div 4$

$\div 4$

55 flyers / hour

b) 90 cupcakes in 1.5h

$\div 1.5$

$\div 1.5$

60 cupcakes /hr

c) 18°C in 4 hr

$\div 4$

$\div 4$

4.5°C /hr

7. a) 60 km / hr - rate
b) \$8 / hr - rate
c) 3 cups cranberry
4 cups gingerale - ratio
d) 25 games won
15 games lost - ratio

8. a) \$4.50 for 4L
 $\div 4$ $\div 4$
\$1.125 / L or \$1.13 / L

b) \$3.00 for 12 cobs
 $\div 12$ $\div 12$
\$0.25 / cob

c) 24 cans for \$9.99
 $\div 24$ $\div 24$
\$0.42 / can

a. 15 goals in 10 games
1.5 goals / game

b) In 35 games
 1.5×35
52.5 goals
or 52 goals in 35 games

10 After the race, you would expect her heart rate to increase, so it would be 120 beats/min

11. \$1.44 for 3m
 $\div 3$ $\div 3$
\$0.48/m

b) \$2.40 for 5m

c) 4.80 for 10m

9.60 for 20m
2.40 for 5m

12 for 25m

★12)

a)

point / games

114 points / 9 games

$\div 9$

$\div 9$

12.6 points / game

$\times 24$

$\times 24$

b)

304 points / 24 game

★13) 118.1 cm / day

118.1 cm / 24 hr

$\div 24$

$\div 24$

4.92 cm / 1h