

Name: key
 Date: _____

1.2 Unit Price

Investigate:

Who has the fastest heart rate? Find your pulse and count the number of beats in 30 seconds as a class. Write down this number and answer the questions below.

Adults (+18) = 60-100 bpm
 Children (6-18) = 70-100 bpm

32 beats/30 seconds

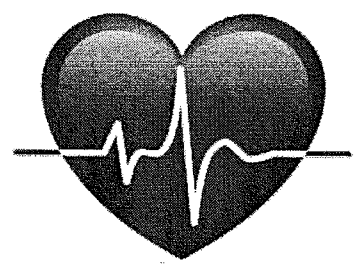
- Calculate your beats per minute. Who has the fastest heart rate in your group and how do you know?

$$\frac{32 \text{ beats}}{30 \text{ sec}} \times 2 = 64 \text{ beats/min} \quad \text{or} \quad \frac{32 \text{ beats}}{30 \text{ sec}} \times \frac{60 \text{ sec}}{1 \text{ min}} = 64 \text{ beats/min}$$

- Calculate how many times your heart would beat in an hour? A day?

$$\frac{64 \text{ beats}}{1 \text{ min}} \times \frac{60 \text{ min}}{1 \text{ hr}} = 3840 \text{ beats/hr}$$

- What assumptions do you make?



Connect:

When two things with different units are compared we have a rate.

Here are some rate examples:

- 5 pizzas for every 20 students
- Oranges are on sale \$1.69 for 12
- Timmy earns \$9.00 per hour at McDonalds
- There are 12 cans of Coke in each box

The last two examples are unit rates. Unit rates compare a quantity to

one unit
(1)

Examples:

- Express the following as a unit rate:

- The car travelled 180km in 2 hours.

$$\frac{180 \text{ km}}{2 \text{ hr}} = \frac{x}{1 \text{ hr}} \quad x = 90 \text{ km/hr}$$

- A printer can print 55 copies in 20 seconds.

$$\frac{55 \text{ copies}}{20 \text{ sec}} = \frac{2.75 \text{ copies}}{1 \text{ sec}}$$

- Naomi reads 24 pages in 30 minutes.

$$\frac{24 \text{ pages}}{30 \text{ min}} = \frac{0.8 \text{ pages}}{1 \text{ min}}$$

Cross Multiply and Divide Method

a. $\frac{180}{2} = \frac{x}{1} \quad x = 90$

b. $\frac{55}{20} = \frac{x}{1}$
 $55 \times 1 \div 20 =$

c. $\frac{24}{30} = \frac{x}{1} \quad 24 \times 1 \div 30 =$

2. A 300 g package of pepperoni costs \$4.29.

a. What is the cost per 100g?

$$(4.29) (\times) \frac{300g}{\$4.29} = \frac{100g (\times) (4.29)}{x}$$

$$\frac{300x}{300} = \frac{429}{300}$$

$$x = \$1.43$$

b. How much would 1 kg cost?

1000g = 1kg

$$\$1.43/g \times 10 = \$14.30$$

(or) $\frac{\$1.43}{100g} \times \frac{1000g}{1kg} = \14.3 (or) $\frac{\$1.43}{100g} = \frac{x}{1000g}$

c. How much pepperoni could you buy with \$20?

(1/0) (or) $\frac{\$1.43}{100g} = \frac{\$20}{x}$ (or) $\frac{1.43z}{1.43} = \frac{2000}{1.43}$

$$z = 1398.6g$$

Connect:

When you are presented with two different rates we use unit rates to make comparisons.

Examples:

1. Which is the better buy?

a. 5 oranges for \$1.65 or 8 oranges for \$2.77.

#2 $\frac{5 \text{ oranges}}{1.65} = \frac{1 \text{ orange}}{x}$ $x = \$0.33$

$\frac{8 \text{ oranges}}{\$2.77} = \frac{1 \text{ orange}}{x}$

#1 $1.65 \times 1 = 1.65$ #2 $1.65 \div 5 = 0.33$

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

$$\frac{2L}{\$2.56} = \frac{1L}{x}$$

$x = \$1.28$

already unit rate

$x = \$0.35$

Try It!

Which is the better buy: 6 donuts from Dolicious for \$9.36, or one dozen donuts from Tim Hortons for \$15.63? Why might you purchase the more expensive option? Please show your teacher when completed.

bc like taste better

(12)