

Comparing Prices

8.5

- To compare prices, you must convert all prices to a unit price.
- A unit price is the amount of money per 1 piece, 1 kg, 1L, 100mL, 100g, 1 can, ...
- It is important that the amount of \$ is related to the same unit.

Converting Units

L → mL : multiply by 1000

mL → L: divide by 1000

$$2L = ? mL$$

$$2(1000) = 2000mL$$

$$\therefore 2L = 2000mL$$

kg → g: multiply by 1000

g → kg: divide by 1000

$$7kg = ? g$$

$$7(1000) = 7000$$

$$\therefore 7kg = 7000g$$

cm → m: divide by 100

m → cm: multiply by 100

$$408m = ? cm$$

$$408(100) = 40800$$

$$\therefore 408m = 40800cm$$

cm → mm: multiply by 10

mm → cm: divide by 10

$$56cm = ? mm$$

$$56(10) = 560$$

$$\therefore 56cm = 560mm$$

$$400mL = ? L$$

$$\frac{400}{1000} = 0.4$$

$$\therefore 400mL = 0.4L$$

$$450g = ? kg$$

$$\frac{450}{1000} = 0.45$$

$$\therefore 450g = 0.45kg$$

$$60cm = ? m$$

$$\frac{60}{100} = 0.6$$

$$\therefore 60cm = 0.6m$$

$$42mm = ? cm$$

$$\frac{42}{10} = 4.2$$

$$\therefore 42mm = 4.2cm$$

Converting Units Using Dimensional Analysis = "Scientific Way"

- Have your formula sheet with conversion factors handy.
- Use the principle of reducing fractions diagonally when multiplying fractions. → turn the measurement into a fraction (over 1)

Examples:

1. 25 cm = ? km

$$\frac{25 \text{ cm}}{1} \times \frac{1 \text{ m}}{100 \text{ cm}} \times \frac{1 \text{ km}}{1000 \text{ m}} = \frac{25(1)(1) \text{ km}}{(1)(100)(1000)} = \frac{25 \text{ km}}{100000} = 0.00025 \text{ km}$$

2. 430 g = ? kg

$$\frac{430 \text{ g}}{1} \times \frac{1 \text{ kg}}{1000 \text{ g}} = \frac{430(1) \text{ kg}}{(1)(1000)} = \frac{430 \text{ kg}}{1000} = 0.43 \text{ kg}$$

3. 5.0 L = ? mL

$$\frac{5.0 \text{ L}}{1} \times \frac{1000 \text{ mL}}{1 \text{ L}} = \frac{(5.0)(1000) \text{ mL}}{(1)(1)} = 5000 \text{ mL}$$

4. 47.5 in = ? m

$$\frac{47.5 \text{ in}}{1} \times \frac{2.54 \text{ cm}}{1 \text{ in}} = \frac{1 \text{ m}}{100 \text{ cm}} = \frac{47.5(2.54)(1) \text{ m}}{(1)(1)(100)}$$

$$= \frac{120.65 \text{ m}}{100}$$

$$= 1.2065 \text{ m}$$

Unit Price

Determine the unit price for each item:

A) A dozen eggs for \$ 6.25

$$\frac{\$}{\#} \rightarrow \frac{6.25}{12} = \$0.52$$

$$\therefore \$0.52 \text{ per 1 egg}$$

B) Six cookies for \$3.60

$$\frac{\$3.60}{6} = \$0.60$$

$$\therefore \$0.60 \text{ per 1 cookie}$$

C) 1.5 L of milk for \$5.70

$$\frac{\$}{L}$$

- Find price per liter

$$\frac{\$5.70}{1.5L} = \$3.80 \text{ per L}$$

$$\frac{\$3.80}{L}$$

- Find price per 100 mL

$$= \frac{3.800}{1000\text{mL}}$$

$$\rightarrow \frac{\$}{\text{mL}} \text{ find } \$ \text{ per mL} \rightarrow \frac{3.80}{1000} = 0.0038 \text{ per mL}$$

0.38 per 100mL

↳ multiply by 100

$$0.0038 \times 100 = \$0.38$$

D) 450 g of brie cheese for \$12.30

$$\frac{\$}{g}$$

- Find price per 1 g

$$\frac{\$12.30}{450g} = \$0.027 \text{ per 1g}$$

- Find price per 100g

$$\rightarrow (0.0273)(100) = \$2.73 \text{ per 100g}$$

- 1kg = 1000g • Find price per 1 kg

$$(0.0273)(1000) = \$27.33 \text{ per 1kg}$$

