

Unit Price & Best Buys

Calculating Unit Price

The unit price of an item is the cost per item. It could be the cost of one can of pop in a 6-pack, it could be the cost of one egg in a dozen, it could be the cost of one kg in 10kg of potatoes. Whatever the items, it is always the cost of one.

To calculate the unit price, take the money and divide by the amount (number, mass, volume) of the items you have.

Example: One dozen donuts cost \$7.99. What is the unit price?

$$\frac{\text{cost}}{\text{item}} = \frac{\$7.99}{12} = \frac{\$0.6658}{1 \text{ donut}}$$

$$\$0.67 \text{ per donut} \quad \$0.67/\text{donut} \times \text{inc. units}$$

Practice:

1. Calculate each unit price.

a) \$3.99 for 2 kg of bananas

$$\frac{\$3.99}{2 \text{ kg}} = \$1.995 = \$2.00 \text{ per kg}$$

b) 18 eggs for \$5.94

$$\frac{\$5.94}{18 \text{ egg}} = \$0.33 \text{ per egg}$$

c) \$23.90 for 1.5 kg of pecans

$$= \$15.93 \text{ per kg}$$

d) \$35.16 for 40L of gas

$$= \$0.88 \text{ per L}$$

2) Lindsay orders a case of 1000 paper coffee cups for her restaurant. If it costs her \$94.83 for the case, how much does one cup cost?

$$\frac{\$94.83}{1000} = \$0.09483 \text{ per cup}$$

3) Frank is a locksmith. He buys a case of 144 padlocks for \$244.97. He sells each lock for \$5.50.

a) How much does each lock cost Frank to buy?

$$\frac{\$244.97}{144 \text{ locks}} = \$1.70/\text{lock}$$

b) How much profit does Frank make when he sells one lock?

$$\begin{array}{r} \$5.50 \\ - \$1.70 \\ \hline \$3.80 \end{array}$$

$$\Rightarrow \text{Sell all locks?} \quad 144 \times \$3.80 = \$547.03$$

Working with Unit Price

Often unit price is used to compare costs and find which choice is the better buy. This is done by comparing the unit price of each item.

Example: A 48-oz can of tomatoes costs \$2.99. An 18-oz can costs \$1.19. Which is the better buy?

$$\textcircled{1} \frac{\$2.99}{48 \text{ oz}} = \$0.0623/\text{oz} \quad \textcircled{2} \frac{\$1.19}{18 \text{ oz}} = \$0.0661/\text{oz}$$

Practice:

1) A bookstore sells notebooks in packages of 12 for \$15.48. Another bookstore sells the same notebooks on packages of 15 for \$19.65. Which has the better unit price?

$$\textcircled{1} \frac{\$15.48}{12} = \$1.29/\text{book} \quad \textcircled{2} \frac{\$19.65}{15 \text{ book}} = \$1.31/\text{book}$$

2) Judd can buy three 8-foot pieces of lumber for \$2.60 each, or four 6-foot pieces for \$1.92 each. Which is the better buy?

$$\frac{\$2.60}{8 \text{ ft}} = \$0.325/\text{ft} \quad \frac{\$1.92}{6 \text{ ft}} = \$0.32/\text{ft}$$

When comparing unit price of different items it is important to start with the amount in the same units.

Common Conversions (see data booklet pages for complete list)

Volume	Distance	Mass
1L = 1000mL	1m = 100cm	1kg = 1000g
1L = 0.26 gallons	1km = 0.62mi	1kg = 2.2lb
	1inch = 2.54cm	1lb = 454g

Use cross multiply and divide to change units.

conversion $\frac{\text{known}}{\text{unknown}} = \frac{\text{known}}{\text{unknown}}$

Example:

1) The average sockeye salmon weighs 3.6kg. How many pounds is this?

$$\frac{1 \text{ kg}}{2.2 \text{ lb}} = \frac{3.6 \text{ kg}}{x \text{ lb}}$$

* same units in same place

$$2.2 \times 3.6 \div 1 = 7.92 \text{ lb}$$

2) A 4L jug of milk sells for \$5.79 at Thrifty Foods, and the small 473mL carton sells for \$1.59. Which is the better value?

$$\frac{1 \text{ L}}{1000 \text{ mL}} = \frac{x \text{ L}}{473 \text{ mL}}$$

$$473 \times 1 \div 1000 = 0.473 \text{ L}$$

Big Jug

$$\frac{\$5.79}{4 \text{ L}} = \$1.45/\text{L}$$

Carton

$$\frac{\$1.59}{0.473 \text{ L}} = \$3.36/\text{L}$$

Often it is necessary to use the unit price to make a further calculation.

Example: If 1.5 m of fabric costs \$12.63, how much will 2.75 m cost?

$$\frac{\$12.63}{1.5\text{m}} = \$8.42/\text{m} \times 2.75\text{m} = \boxed{\$23.16}$$

① Find unit price

② Multiply by amount needed.

Practice:

1) If 2.5 kg of potatoes cost \$8.25, how much will you pay for 7 kg?

$$\frac{\$8.25}{2.5\text{kg}} = \$3.30/\text{kg} \times 7\text{kg} = \boxed{\$23.10}$$

2) If it cost Wayne \$5.45 to buy 5 L of gas for his lawnmower, how much would he have to pay to fill his car with 48 L of gas?

$$\frac{\$5.45}{5\text{L}} = \$1.09/\text{L} \times 48\text{L} = \boxed{\$52.32}$$

3) Sash is a landscape gardener. He found a 200-foot roll of string trimmer line for \$18.75. At this ratio, what would a 150-foot roll of cost?

$$\frac{\$18.75}{200\text{ft}} = \$0.09375/\text{ft} \times 150\text{ft} = \boxed{\$14.06}$$

↑
String

Summary:

- When working with unit price it will always be the cost **per** amount or $\frac{\text{cost}(\$)}{\text{amount}(g/L/m/\text{etc.})}$
- Units must be the **same** when comparing items

$$\frac{18.75}{200} = 0.09375$$

$$0.09375 \times 150 = 14.06$$

