

**WALT** express one quantity as a percentage of another

**Success Criteria** I know how to change both quantities to the same unit ( Convert units eg cents and dollars are different units they all either need to be converted to dollars only or cents only)

I can write the percentage as a fraction in simplest form

Replace “of” by times x and calculate the answer

[Watch the Video](#)

### ● EXAMPLE 1

Express the first quantity as a percentage of the second quantity.

**a** 38 cm, 40 cm

**b** 42 cm, 1.2 m

**c** 2 weeks, 20 days

Use  $\frac{\text{first quantity}}{\text{second quantity}} \times 100\%$

**a** So  $\frac{38}{40} \times \frac{100}{1}\% = 95\%$

$\therefore$  38 cm is 95% of 40 cm.

**b** Convert to cm: that is, 42 cm, 120 cm.

**c** Convert to days: that is, 14 days, 20 days.

So  $\frac{42}{120} \times \frac{100}{1}\% = 35\%$

$\therefore$  42 cm is 35% of 1.2 m.

So,  $\frac{14}{20} \times \frac{100}{1}\% = 70\%$

$\therefore$  2 weeks is 70% of 20 days.

**1** Express the first quantity as a percentage of the second quantity.

**a** \$6, \$15

**b** 10 km, 50 km

**c** 4 h, 25 h

**d** 18 min, 50 min

**e** 70 m, 125 m

**f** \$88, \$440

**g** 60 L, 200 L

**h** 27 kg, 50 kg

**i** 54 min, 75 min

**j** 25 h, 100 h

**k** 32 L, 64 L

**l** 45 m, 180 m

**2** What percentage is the first quantity of the second?

**a** 28 cm : 1.4 m

**b** 72 cm :  $1\frac{1}{2}$  m

**c** 1.8 m : 60 cm

**d** 810 g : 4.05 kg

**e** 156 g : 0.24 kg

**f** 3.62 kg : 400 g

**g** \$0.60 : \$2

**h** 85c : \$5

**i** 5.4 L : 600 mL

**j** 18 h : 1 day

**k** 12 h : 2 days

**l** \$2.55 : \$1.25

**m** 6 months : 2 years

**n** 21 months :  $3\frac{1}{2}$  years

**o** 24 months : 5 years

### ● EXAMPLE 2

Calculate the following.

**a** 20% of 40 m

**b**  $12\frac{1}{2}\%$  of \$40

$$\begin{aligned} \text{a } 20\% \text{ of } 40 \text{ m} &= \frac{20}{100} \times \frac{40}{1} \\ &= \frac{800}{100} \\ &= 8 \text{ m} \end{aligned}$$

$$\begin{aligned} \text{b } 12\frac{1}{2}\% &= \frac{25}{200} \\ 12\frac{1}{2}\% \text{ of } \$40 &= \frac{25}{200} \times \frac{40}{1} \\ &= \frac{1000}{200} \\ &= 5 \text{ m} \end{aligned}$$

## Challenge

**3** Calculate:

**a** 45% of \$260

**b** 64% of 500 L

**c** 75% of \$240

**d** 17% of 50

**e** 12% of 64 kg

**f** 18% of 80 m

**g**  $62\frac{1}{2}\%$  of \$320

**h**  $66\frac{2}{3}\%$  of 180 m

**i** 32% of 308 kg

**j** 72% of 210 L

**k** 21% of \$544

**l** 13% of \$126

**4** Convert each percentage to a decimal, then calculate:

**a** 4% of \$120

**b** 9% of 220 L

**c** 6% of 40 m

**d** 15% of 600 kg

**e** 13% of \$160

**f** 52% of 1600 km

## Check your Answers

**1 a** 40%

**b** 20%

**c** 16%

**d** 36%

**e** 56%

**f** 20%

**g** 30%

**h** 54%

**i** 72%

**j** 25%

**k** 50%

**l** 25%

**2 a** 20%

**b** 48%

**c** 300%

**d** 20%

**e** 65%

**f** 905%

**g** 30%

**h** 17%

**i** 900%

**j** 75%

**k** 25%

**l** 204%

**m** 25%

**n** 50%

**o** 40%

**3 a** \$117

**b** 320 L

**c** \$180

**d** 8.50

**e** 7.68 kg

**f** 14.4 m

**g** \$200

**h** 120 m

**i** 98.56 kg

**j** 151.2 L

**k** \$114.24

**l** \$16.38

**4 a** \$4.80

**b** 19.8 L

**c** 2.4 m

**d** 90 kg

**e** \$20.80

**f** 832 km