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 $\dfrac{\text{first quantity}}{\text{second quantity}} \times 100\%$

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

∴ 38 cm is 95% of 40 cm.

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

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

∴ 42 cm is 35% of 1.2 m.

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

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

∴ 2 weeks is 70% of 20 days.

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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

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EXAMPLE 2

Calculate the following.

a 20% of 40 m   b $12\frac{1}{2}\%$ of $40

a 20% of 40 m $= \dfrac{20}{100} \times \dfrac{40}{1}$

$= \dfrac{800}{100}$

$= 8$ m

b $12\frac{1}{2}\% = \dfrac{25}{200}$

$12\frac{1}{2}\%$ of $40 $= \dfrac{25}{200} \times \dfrac{40}{1}$

$= \dfrac{1000}{200}$

$= 5$ m

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