

Convert to decimals

Example 3

Convert to a decimal: **a** 60% **b** 46.5%

$$\begin{aligned} \mathbf{a} \quad 60\% &= \frac{60}{100} \\ &= 0.6 \end{aligned}$$

$$\begin{aligned} \mathbf{b} \quad 46.5\% &= \frac{46.5}{100} \\ &= 0.465 \end{aligned}$$

3 Convert the following percentages to decimals:

- a** 36% **b** 42% **c** 62.5% **d** 93% **e** 130%
f 100% **g** 24.3% **h** 427.3% **i** 0.3% **j** 0.012%

To convert a decimal number to a percentage we multiply by 100%.

Example 4

Convert to a percentage: **a** 0.4 **b** 0.332

$$\begin{aligned} \mathbf{a} \quad 0.4 &= 0.4 \times 100\% \\ &= 40\% \end{aligned}$$

$$\begin{aligned} \mathbf{b} \quad 0.332 &= 0.332 \times 100\% \\ &= 33.2\% \end{aligned}$$

{ Calculator: 0.332 \times 100 $=$ }

4 Convert the following to percentages:

- a** 0.72 **b** 0.45 **c** 0.61 **d** 0.06 **e** 1.3
f 2.65 **g** 0.125 **h** 0.316 **i** 1 **j** 0.0042

WORD PROBLEMS

Example 5

Four students in a class of 32 wear brown shoes.
What percentage of students wear brown shoes?

4 out of 32 wear brown shoes.

i.e., $\frac{4}{32}$ of the class wear brown shoes

This is $\frac{4}{32} \times 100\% = 12.5\%$ of the class.

- 5** A rugby squad had 28 players in it. 18 of these players were from the Burnside club. What percentage of the players came from the Burnside club?
- 6** Ten out of 25 people in our street shop at the local dairy. What percentage is this?



- 7 Last night Hemi ate 12 oysters from a jar containing 40 oysters. What percentage of the oysters did he have left?
- 8 Of Emma's wage of \$450 for the week, \$120 was spent on food. What percentage of her wage was spent on food?
- 9 Tammy ran 18 km of the race before she had to pull out. If the race was supposed to be 42 km long, what percentage of the race did she not complete?

Example 6

Find 20% of \$15.

$$\begin{array}{lcl}
 20\% \text{ of } \$15 & \text{or} & 20\% \text{ of } \$15 \\
 = \frac{20}{100} \times \$15 & & = 0.2 \times \$15 \\
 = \frac{1}{5} \times \$15 & & = \$3 \\
 = \$3 & &
 \end{array}$$

Remember that 'of' is replaced by multiply.



- 10 Calculate:
- a 30% of \$18 b 65% of 14 kg c 9% of 90 mm
- d 25% of \$7.20 e 75% of 9.8 kg f 108% of 35 km
- 11 John reduced the price of an item in his shop by 12%. If the original price was \$25, by how much did he reduce it?
- 12 During a storm the Rouse family had 18% of their section flooded. If their section was 2500 m², what area was flooded?
- 13 8% of my weight is in my head. If I weigh 72 kg, how much does my head weigh?
- 14 The sun stayed out for 22% more time today than yesterday. If the sun stayed out for 8 hours yesterday, how long did it stay out today?

Example 7

If 20% of a carton weighs 6 kg, how much does the total carton weigh?

$$\begin{array}{l}
 20\% \text{ of } x \text{ kg} = 6 \text{ kg} \quad \{x \text{ kg is the carton's total weight}\} \\
 \therefore 0.2 \times x = 6 \\
 \therefore x = \frac{6}{0.2} \\
 \therefore x = 30 \quad \text{and so, the carton weighs 30 kg.}
 \end{array}$$

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- 15** Find the unknown value if:
- a** 30% of A is \$8 **b** 60% of B is \$25 **c** 24% of C is 18 m
d 42% of D is 25 tonne **e** 12% of E is 15 L
- 16** If 35% of the total fruit crop is already picked and this is 12 tonne, what will be the total weight of the fruit crop?
- 17** Huia had written 600 words of her essay. If this was only 12% of the total number of words needed, how many words will be in her finished essay?

Earning an income	
Salary	A pre-determined or negotiated amount is paid for the year even though pay periods are fortnightly, monthly or perhaps quarterly. Examples include: teachers, government workers, nurses, some lawyers, some doctors.
Wages	Wages are based on an hourly rate for an agreed number of hours per week for a permanent employee. Usually paid fortnightly. Examples include: shop assistants, building and construction workers, factory workers, mechanics.
Commission	Usually a weekly retainer (a fixed amount) plus a percentage of the value of the goods or services sold is paid. Examples include: real estate agents, insurance agents, car salesmen, taxi drivers.
Piecework	Pieceworkers receive a fixed payment for each item completed. Examples include: clothing manufacturers, shearers, fruit pickers.
Casual	A casual is paid at a fixed rate per hour but is employed only when needed. Examples include: relief teachers, assistants in supermarkets and fast food outlets, swimming instructors, hospitality workers.

Example 8

Convert an annual salary of \$39 000 to monthly, fortnightly, weekly and hourly salaries, assuming a 40 hour week.

$$\begin{aligned} \text{monthly salary} &= \frac{\$39\,000}{12} = \$3250 \text{ per month} \\ \text{fortnightly salary} &= \frac{\$39\,000}{26} = \$1500 \text{ per fortnight} \\ \text{weekly salary} &= \frac{\$39\,000}{52} = \$750 \text{ per week} \\ \text{hourly salary} &= \frac{\$39\,000}{52 \times 40} \div \$18.75 \text{ per hour} \end{aligned}$$

