

WA7MNAC2

Calculating with number

Core + Challenge

Expressing One Quantity as a Percentage of Another

I can express one quantity as a percentage of another, converting to the same units first.

Name: _____ Date: _____ Score: _____ / 56

Key idea

Percentage = part ÷ whole × 100% (write it as a fraction, then convert). 12 out of 50 = $\frac{12}{50} = \frac{24}{100} = 24\%$

Same units first: 45 min as a percentage of 2 h → $\frac{45}{120} = \frac{3}{8} = 37.5\%$

Decimals: 0.48 as a percentage of 2 → $0.48 \div 2 = \frac{48}{200} = \frac{24}{100} = 24\%$

Change as a percentage: change ÷ original × 100%. \$80 → \$60 is a \$20 drop: $\frac{20}{80} = 25\%$ decrease

A

Fluency *practise the skill*

/ 16 marks

Write the first quantity as a percentage of the second. Convert units first where needed.

1. 12 out of 50 = _____

9. 150 compared with 120 = _____

2. 18 out of 20 = _____

10. 250 g of 1 kg = _____

3. 7 out of 25 = _____

11. 45 min of 2 h = _____

4. 45 out of 60 = _____

12. 80 cm of 2 m = _____

5. 5 out of 8 = _____

13. \$1.20 of \$4.80 = _____

6. 0.48 of 2 = _____

14. 750 mL of 2 L = _____

7. 33 out of 40 = _____

15. 13 out of 52 = _____

8. 9 out of 15 = _____

16. 2.4 compared with 1.5 = _____

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B**Core** *apply the skill to problems*

/ 21 marks

- 1 Ella scored 34 out of 40 on one test and Jack scored 42 out of 50 on another. Write both as percentages. Who did better? [2 marks]

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.....

Answer: _____

- 2 In a class of 30, 12 students play a musical instrument. What percentage play an instrument? [2 marks]

.....

Answer: _____

- 3 A jacket was reduced from \$80 to \$60. What was the percentage discount? [2 marks]

.....

Answer: _____

- 4 A baby weighed 3.2 kg at birth and 4 kg at six weeks. Express the increase as a percentage of the birth weight. [2 marks]

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Answer: _____

- 5 A football team won 13 of its 22 games. What percentage did it win? Give your answer to 1 decimal place. [2 marks]

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Answer: _____

- 6 Mira drank 1.8 L from a 2.4 L bottle. What percentage of the bottle did she drink? [2 marks]

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Answer: _____

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- 7 It rained on 18 of the 31 days in July. On what percentage of days did it rain? (1 decimal place) [2 marks]

.....

Answer: _____

- 8 In a survey of 120 students: AFL 42, soccer 30, netball 36, other 12. Write each as a percentage of the students surveyed. [3 marks]

.....

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Answer: _____

- 9 A shop buys a shirt for \$25 and sells it for \$40. What is the profit as a percentage of the cost price? [2 marks]

.....

Answer: _____

- 10 Sam has saved \$375 towards a \$600 goal. What percentage of the goal does he still need to save? [2 marks]

.....

Answer: _____

C**Reasoning** *explain, justify and check*

/ 9 marks

- 1 Explain why you must use the same units to write 45 minutes as a percentage of 2 hours. [2 marks]

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- 2 Mo says 15 out of 60 is 15%. Explain his mistake and give the correct percentage. [2 marks]

.....

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- 3 Ari's test score went from 40% to 50%. He says it went up by 10%. Explain why the increase is actually 25%. [3 marks]

- 4 Can one quantity be more than 100% of another? Explain with an example. [2 marks]

D Challenge *multi-step and problem-solving*

/ 10 marks

- 1 Order these test results from best to worst: Test A $\frac{17}{20}$ Test B $\frac{26}{30}$ Test C $\frac{43}{50}$ [3 marks]

Answer: _____

- 2 A shirt's price rose from \$40 to \$50, then fell back to \$40. [3 marks]
(a) What was the percentage increase?
(b) What was the percentage decrease?
(c) Why are they different?

Answer: _____

- 3 In a class, the ratio of girls to boys is 3 : 5. What percentage of the class are girls? [2 marks]

Answer: _____

- 4 Liam scored 18 out of 25 on Test 1. Test 2 is out of 40. What is the lowest whole-number score he needs on Test 2 to get a **higher** percentage? [2 marks]

Answer: _____

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How did I go?Fluency ____ / 16 Core ____ / 21 Reasoning ____ / 9 Challenge ____ / 10 **Total ____ / 56**

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