

Varied Fluency

Step 6: Percentages – Missing Values

National Curriculum Objectives:

Mathematics Year 6: (6R2) [Solve problems involving the calculation of percentages \[for example, of measures, and such as 15% of 360\] and the use of percentages for comparison](#)

Mathematics Year 6: (6F11) [Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts](#)

Differentiation:

Developing Questions to support finding missing values involving percentages. Percentages are multiples of 10%.

Expected Questions to support finding missing values involving percentages. Percentages are multiples of 5% and 10%, with some multiples of 1%. Some answers include decimal places.

Greater Depth Questions to support finding missing values involving percentages. Includes any percentage, including multiples of 0.5%. Answers may include decimal places.

More [Year 6 Percentages](#) resources.

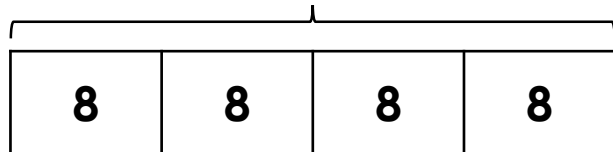
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Percentages – Missing Values

Percentages – Missing Values

1a. Find the whole by using the bar model below to help you.

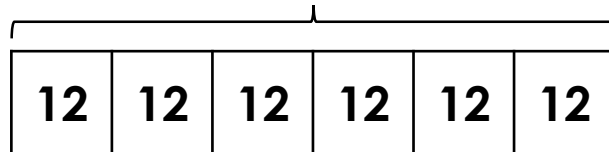
40%



VF

1b. Find the whole by using the bar model below to help you.

60%



VF

2a. Circle the two facts could that help you complete the calculation below.

$$70\% \text{ of } 80 = \boxed{?}$$

- A. 40 is half of 80
- B. 50% of 90 = 45
- C. 10% of 80 = $80 \div 10$



VF

2b. Circle the two facts that could help you complete the calculation below.

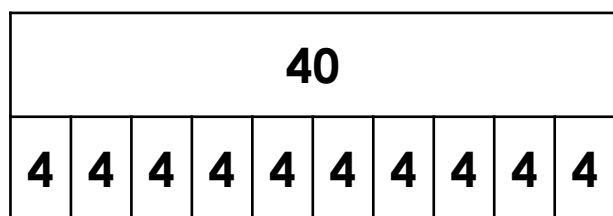
$$30\% \text{ of } 120 = \boxed{?}$$

- A. $120 \div 4 = 30$
- B. 10% of 120 = 12
- C. $30\% = 10\% \times 3$



VF

3a. Find the missing values by using the bar model below to help you.



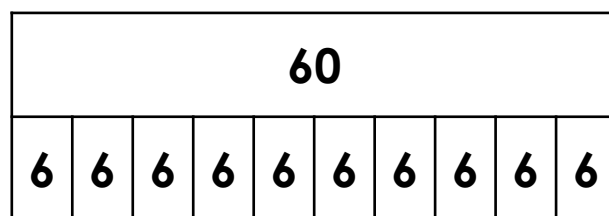
$$60\% \text{ of } 40 = \boxed{}$$

$$\boxed{} \text{ of } 40 = 32$$



VF

3b. Find the missing values by using the bar model below to help you.



$$30\% \text{ of } 60 = \boxed{}$$

$$\boxed{} \text{ of } 60 = 42$$



VF

4a. Trixie uses 70% of a bag of sugar to make cupcakes.

The bag had 200g of sugar when full.

How much sugar did she use?



VF

4b. A dressmaker uses 90% of a roll of fabric.

The roll had 500cm of fabric when full.

How much fabric did she use?



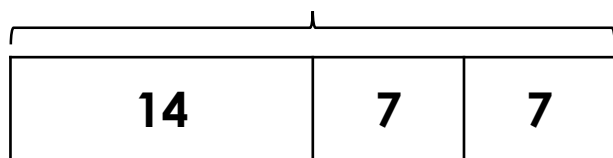
VF

Percentages – Missing Values

Percentages – Missing Values

5a. Find the whole by using the bar model below to help you.

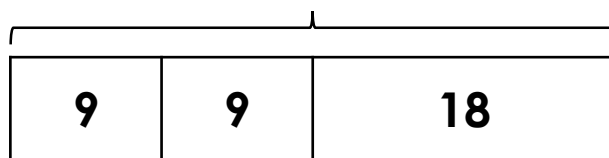
20%



VF

5b. Find the whole by using the bar model below to help you.

40%



VF

6a. Circle the two facts could that help you complete the calculation below.

$$21\% \text{ of } 90 = \boxed{?}$$

- A. $90 \div 10 = 9$
- B. $50\% \text{ of } 90 = 45$
- C. $9 \div 10 = 0.9$



VF

6b. Circle the two facts that could help you complete the calculation below.

$$11\% \text{ of } 150 = \boxed{?}$$

- A. $150 \div 2 = 75$
- B. $10\% \text{ of } 150 = 150 \div 10$
- C. $1\% = 10\% \div 10$



VF

7a. Find the missing values.

$$\begin{aligned} 5\% \text{ of } 60 &= \boxed{} \\ 10\% \text{ of } \boxed{} &= 84 \\ 41\% \text{ of } 30 &= \boxed{} \\ 25\% \text{ of } \boxed{} &= 15 \end{aligned}$$



VF

7b. Find the missing values.

$$\begin{aligned} 9\% \text{ of } 200 &= \boxed{} \\ 35\% \text{ of } \boxed{} &= 140 \\ 15\% \text{ of } 70 &= \boxed{} \\ 71\% \text{ of } \boxed{} &= 504.1 \end{aligned}$$



VF

8a. A sweet shop makes 45% of its yearly profit in the month of December.

This December they made a profit of £5,400.

How much was their profit for the whole year?



VF

8b. The local pool uses 35% of the total water to run the water slides.

The total water used by the swimming pool is 12,000 gallons.

How much water do the slides use?

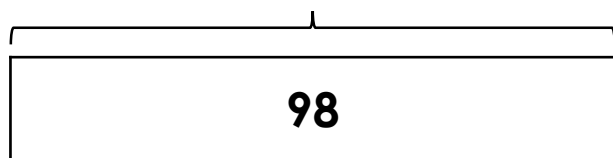


VF

Percentages – Missing Values

9a. If 49% of a whole is 98, what number is the whole?

49%

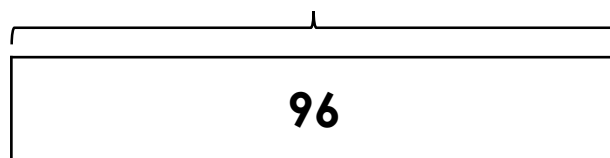


VF

Percentages – Missing Values

9b. If 32% of a whole is 96, what number is the whole?

32%



VF

10a. Circle the two facts could that help you complete the calculation below.

$$93\% \text{ of } 350 = \boxed{?}$$

- A. $350 \div 70 = 5$
- B. $10\% \text{ of } 35 = 3.5$
- C. $3 \times 3.5 = 10.5$



VF

10b. Circle the two facts that could help you complete the calculation below.

$$4\% \text{ of } 240 = \boxed{?}$$

- A. $240 \div 50 = 4.8$
- B. $2\% = 10\% \div 5$
- C. $10\% \text{ of } 240 = 24$



VF

11a. Find the missing values.

$$7.5\% \text{ of } 150 = \boxed{}$$

$$64\% \text{ of } \boxed{} = 192$$

$$19.5\% \text{ of } 260 = \boxed{}$$

$$14\% \text{ of } \boxed{} = 21$$



VF

11b. Find the missing values.

$$21.5\% \text{ of } 540 = \boxed{}$$

$$89\% \text{ of } \boxed{} = 178$$

$$3.5\% \text{ of } 120 = \boxed{}$$

$$31\% \text{ of } \boxed{} = 43.4$$



VF

12a. A gardener is mixing compost and manure for his allotment. He makes 7kg of soil in total.

His final product is 62.5% manure.

How much manure did he use?
Give your answer in kilograms.



VF

12b. A chef is making fudge. He mixes peanut butter and sugar together. He makes 6kg of fudge in total.

The final product is 72.5% peanut butter.

How much peanut butter did he use?
Give your answer in kilograms.



VF

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Percentages – Missing Values

Developing

- 1a. 80
- 2a. A and C; 56
- 3a. 24; 80%
- 4a. 140g of sugar

Expected

- 5a. 140
- 6a. A and C; 18.9
- 7a. 3; 840; 12.3; 60
- 8a. £12,000

Greater Depth

- 9a. 200
- 10a. B and C; 325.5
- 11a. 11.25; 300; 50.7; 150
- 12a. 4.375kg of manure

Varied Fluency
Percentages – Missing Values

Developing

- 1b. 120
- 2b. B and C; 36
- 3b. 18; 70%
- 4b. 450cm of fabric

Expected

- 5b. 90
- 6b. B and C; 16.5
- 7b. 18; 400; 10.5; 710
- 8b. 4,200 gallons

Greater Depth

- 9b. 300
- 10b. B and C; 9.6
- 11b. 116.1; 200; 4.2; 140
- 12b. 4.35kg of peanut butter