

Varied Fluency

Step 5: 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 percentages and amounts using a variety of strategies. Percentages are multiples of 10 and solutions are whole numbers.

Expected Questions to support finding percentages and amounts using a variety of strategies. Percentages are multiples of 2 and 5, and solutions may have one decimal place.

Greater Depth Questions to support finding any percentage or amount using a variety of strategies. Solutions may have one decimal place.

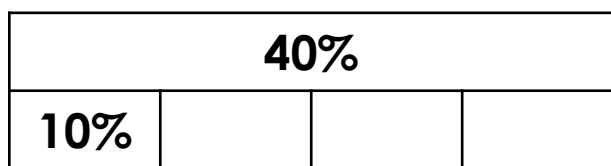
More [Year 6 Percentages](#) resources.

Did you like this resource? Don't forget to [review](#) it on our website.

Percentages – Missing Values

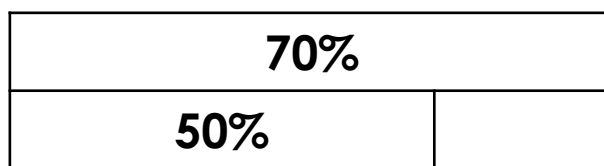
Percentages – Missing Values

1a. Complete the bar model.



VF

1b. Complete the bar model.



VF

2a. Which two facts help to calculate:

$$40\% \text{ of } 80 = \boxed{?}$$

- A. 40 is half of 80
- B. $40\% = 4 \times 10\%$
- C. $80 \div 10 = 8$



Complete the calculation.

VF

2b. Which two facts help to calculate:

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

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



Complete the calculation.

VF

3a. True or false?

$$\text{If } 10\% = 12 \text{ then } 30\% = 36$$



VF

3b. True or false?

$$\text{If } 10\% = 18 \text{ then } 40\% = 54$$



VF

4a. Find the missing values.

$$20\% \text{ of } 40 = \boxed{}$$

$$10\% \text{ of } \boxed{} = 4$$



VF

4b. Find the missing values.

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

$$10\% \text{ of } \boxed{} = 3$$



VF

5a. 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

5b. A dressmaker uses 90% of a roll of fabric.

The roll had 500cm of fabric when full.

How much fabric did she use?

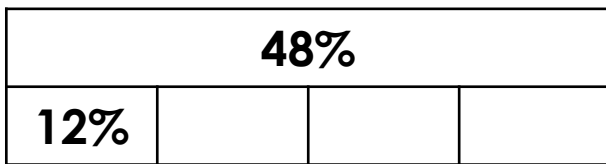


VF

Percentages – Missing Values

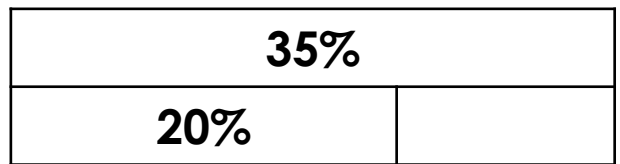
Percentages – Missing Values

6a. Complete the bar model.



VF

6b. Complete the bar model.



VF

7a. Which two facts help to calculate:

$$15\% \text{ of } 90 = \boxed{?}$$

- A. $90 \div 10 = 9$
- B. $50\% \text{ of } 90 = 45$
- C. $5\% \text{ is half of } 10\%$



Complete the calculation.

VF

7b. Which two facts help to calculate:

$$12\% \text{ of } 150 = \boxed{?}$$

- A. $150 \div 2 = 75$
- B. $10\% \text{ of } 150 = 150 \div 10$
- C. $2\% = 10\% \div 5$



Complete the calculation.

VF

8a. True or false?

$$\text{If } 36\% = 45 \text{ then } 4\% = 9$$



VF

8b. True or false?

$$\text{If } 5\% = 13 \text{ then } 45\% = 65$$



VF

9a. Find the missing values.

$$5\% \text{ of } 60 = \boxed{}$$

$$42\% \text{ of } \boxed{} = 84$$

$$10\% \text{ of } 30 = \boxed{}$$

$$25\% \text{ of } \boxed{} = 15$$



VF

9b. Find the missing values.

$$8\% \text{ of } 200 = \boxed{}$$

$$4\% \text{ of } \boxed{} = 16$$

$$15\% \text{ of } 70 = \boxed{}$$

$$75\% \text{ of } \boxed{} = 60$$



VF

10a. A sweet shop makes 48% of its yearly profit in the month of December.

This December they made a profit of £4,800.

How much was their profit for the whole year?



VF

10b. The local pool uses 25% 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?

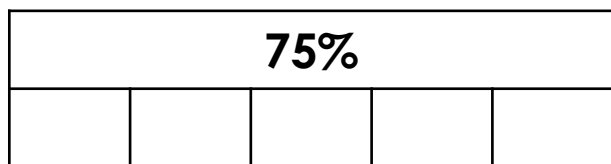


VF

Percentages – Missing Values

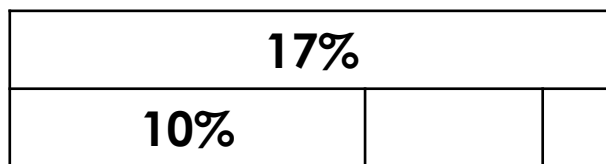
Percentages – Missing Values

11a. Complete the bar model.



VF

11b. Complete the bar model.



VF

12a. Which two facts help to calculate:

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

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



Complete the calculation.

VF

12b. Which two facts help to calculate:

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

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



Complete the calculation.

VF

13a. True or false?

$$\text{If } 12\% = 2.4 \text{ then } 48\% = 19.2$$



VF

13b. True or false?

$$\text{If } 9\% = 13.5 \text{ then } 81\% = 150$$



VF

14a. Find the missing values.

$$\begin{aligned} 7\% \text{ of } 150 &= \boxed{} \\ 64\% \text{ of } \boxed{} &= 192 \\ 19\% \text{ of } 250 &= \boxed{} \\ 14\% \text{ of } \boxed{} &= 21 \end{aligned}$$



VF

14b. Find the missing values.

$$\begin{aligned} 21\% \text{ of } 530 &= \boxed{} \\ 89\% \text{ of } \boxed{} &= 178 \\ 3\% \text{ of } 120 &= \boxed{} \\ 21\% \text{ of } \boxed{} &= 25.2 \end{aligned}$$



VF

15a. A gardener is mixing compost and manure for his allotment. He uses a whole 7kg bag of compost.

The final product is 65% manure.

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



VF

15b. A chef is making fudge. He mixes peanut butter and sugar together. He uses a whole 6kg bag of sugar.

The final product is 70% peanut butter.

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



VF

Varied Fluency
Percentages – Missing Values

Developing

- 1a. 10%, 10%, 10%
- 2a. B and C; 32
- 3a. True
- 4a. 8, 40
- 5a. 140g

Expected

- 6a. 12%, 12%, 12%
- 7a. A and C; 13.5
- 8a. False: 4% = 5
- 9a. 3, 200, 3, 60
- 10a. £10,000

Greater Depth

- 11a. 15%, 15%, 15%, 15%, 15%
- 12a. B and C; 325.5
- 13a. False: 48% = 9.6
- 14a. 10.5, 300, 47.5, 150
- 15a. 13kg

Varied Fluency
Percentages – Missing Values

Developing

- 1b. 20%
- 2b. B and C; 36
- 3b. False: 40% = 72
- 4b. 18, 30
- 5b. 450cm

Expected

- 6b. 15%
- 7b. B and C; 18
- 8b. False: 45% = 117
- 9b. 16, 400, 10.5, 80
- 10b. 3,000 gallons

Greater Depth

- 11b. Various answers, for example: 5%, 2%
- 12b. B and C; 9.6
- 13b. False; 81% = 121.5
- 14b. 111.3, 200, 3.6, 120
- 15b. 14kg