Unit 6 · Percentage

HARDER PRACTICE QUESTIONS · ANSWER KEY

Full marks 30

Give the marks for the points in the marking scheme; an answer in other words that says the same is right.

1 Spot the errors

ANSWER U · 3

i. 25% of 80 $= \frac{25}{100} \times 80 = \frac{1}{4} \times 80 =$ **20**. And $\frac{3}{8} = \frac{3}{8} \times 100\% = \frac{300}{8}\% =$ **37.5%**.

ii. "Of" means **multiply**, not take away. And a fraction's two digits written side by side are not its percentage: multiply by 100.

MARKING SCHEME

✓ 20.

✓ 37.5%.

✓ What went wrong in each.

2 Smallest to biggest

ANSWER A · 3

0.45 = 45%; $\frac{3}{8} = 37.5\%$; 42%; $\frac{2}{5} = \frac{40}{100} = 40\%$.

Ascending: $\frac{\mathbf{3}}{\mathbf{8}}$, $\frac{\mathbf{2}}{\mathbf{5}}$, **42%**, **0.45**.

MARKING SCHEME

✓ 0.45 = 45% and $\frac{2}{5} = 40\%$.

✓ $\frac{3}{8} = 37.5\%$.

✓ The order $\frac{3}{8}$, $\frac{2}{5}$, 42%, 0.45.

3 Getting to school

ANSWER A · 4

i. Walk: 35% of 40 $= \frac{35}{100} \times 40 =$ **14**. Bus: $\frac{1}{4} \times 40 =$ **10**. Bicycle: $0.3 \times 40 =$ **12**. Motorbike: $40 - 14 - 10 - 12 =$ **4**.

ii. $\frac{4}{40} \times 100\% =$ **10%**. Check: 35% + 25% + 30% + 10% = 100% ✓

MARKING SCHEME

✓ 14 walk.

✓ 10 by bus and 12 by bicycle.

✓ 4 by motorbike.

✓ 10%.

4 Work backwards

ANSWER A · 3

The spoiled votes were 100% − 45% − 38% = 17% of all the votes.

17% is 34 votes, so 1% is 34 ÷ 17 = 2 votes, and 100% is $2 \times 100 =$ **200 students**.

Check: 45% of 200 = 90, 38% of 200 = 76, and 90 + 76 + 34 = 200 ✓

MARKING SCHEME

✓ The spoiled votes are 17%.

✓ 1% is 2 votes.

✓ 200 students.

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5 Which shop is cheaper?

ANSWER A · 3

First shop: 20% of 2400 = 480 off, so Rs 2400 − 480 = **Rs 1920**.
Second shop: 5% of 2000 = 100 off, so Rs 2000 − 100 = **Rs 1900**.
The **second shop** is cheaper, by **Rs 20**, even though its discount is much smaller.

MARKING SCHEME

- ✓ Rs 1920 in the first shop.
- ✓ Rs 1900 in the second.
- ✓ The second shop, by Rs 20.

6 Two friends' money

ANSWER HA · 3

10% of Rs 500 = Rs 50. So 25% of Sakshi's money is Rs 50.
25% is a quarter, so all of it is 4×50 = **Rs 200**.
Check: 25% of 200 = 50 ✓ (Aaryan has more money, so a smaller percentage of his is the same amount.)

MARKING SCHEME

- ✓ 10% of 500 = 50.
- ✓ 25% of Sakshi's money is 50.
- ✓ Rs 200.

7 A phone's battery

ANSWER A · 4

i. 15% of 5000 = $\frac{15}{100} \times 5000$ = **750 units**.
ii. 100% − 4 × 15% = 100% − 60% = **40%**.
iii. 100, 85, 70, 55, 40, 25, 10: after 5 hours it shows 25%, after **6 hours** 10%.
iv. 10% of 5000 = **500 units**.

MARKING SCHEME

- ✓ 750 units.
- ✓ 40%.
- ✓ 6 hours.
- ✓ 500 units.

8 Make your own

ANSWER A · 3

i. Red $\frac{1}{4} \times 100$ = **25**, blue 0.3×100 = **30**, green **15**.
ii. 100 − 25 − 30 − 15 = 30 squares: **30%**, which is $\frac{30}{100} = \frac{\mathbf{3}}{\mathbf{10}}$.

Any pattern is right if it has 25 red, 30 blue and 15 green squares.

MARKING SCHEME

- ✓ 25 red, 30 blue, 15 green.
- ✓ 30% not colored.
- ✓ $\frac{3}{10}$.

9 Think: up 10%, then down 10%

ANSWER

i. 10% of 10000 = 1000, so Rs 10000 + 1000 = **Rs 11000**.
ii. 10% of 11000 = 1100, so Rs 11000 − 1100 = **Rs 9900**.
iii. **No**, it is Rs 100 less. The rise is 10% of 10000, but the fall is 10% of the **bigger** price, 11000, so more comes off than was put on.

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iv. **The same end price.** Lowered first: 10000 − 1000 = 9000, then raised: 9000 + 900 = **Rs 9900** again.

MARKING SCHEME

- ✓ Rs 11000.
- ✓ Rs 9900.
- ✓ Not back: the second 10% is of a bigger price.
- ✓ Rs 9900 either way.

Marks by level	Knowledge	Understanding	Application	Higher ability	Total
Marks	0	3	20	7	**30**

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