## Foundation Check In - 2.03 Percentages

Do not use a calculator for questions 1-10.

1. Calculate $15 \%$ of 3.4 metres. Give your answer in centimetres.
2. Change $1 \frac{2}{100}$ to a percentage.
3. What percentage is 250 millilitres of 2.5 litres?
4. Increase $£ 15$ by $30 \%$ and then decrease the result by $30 \%$.
5. Complete the calculation to decrease 26 by $8 \%$.

$$
26 \times \ldots \ldots . .=23.92
$$

6. Mike buys a clock that is reduced in price by $20 \%$ and pays $£ 32$.

He thinks, "As the price is reduced by $20 \%$, I'm only paying $80 \%$ of the full price. I should be able to work out the full price."
Use Mike's reasoning to work out the full price and check whether he is right.
7. A table is advertised at " $50 \%$ off the price". On the day Rita buys the table she gets an additional in-store discount of $10 \%$ off the sale price.
Explain why Rita does not get $60 \%$ off the original price.
8. Jennifer drinks $50 \%$ of a bottle of juice and her friend Jane then drinks $40 \%$ of the remaining juice, leaving 450 ml of juice in the bottle. Show that the bottle originally contained 1.5 litres of juice.
9. A garage has a sales offer of 'buy three, get one free' on tyres. If each tyre normally costs $£ 57.50$, work out the percentage saving of buying 5 tyres.
10. The area of a rectangle is found by multiplying the length by the width.

The length is increased by $10 \%$ and the width by $20 \%$.
By what percentage is the area increased?

## Extension (You may use a calculator)

Gizela buys a new car for $£ 20300$.
The value of the car drops by $10 \%$ of its value in the first year. It then drops by $20 \%$ of its value in the second year, $30 \%$ in the third year, etc.

Gizela plans to sell the car when its value drops below $£ 10000$. Find the number of whole years Gizela will keep the car before she sells it.

## Answers

1. 51 cm
2. $102 \%$
3. $10 \%$
4. $£ 13.65$
5. 0.92
6. The original price $=32 \div 0.8=£ 40$.

I can check my workings by finding a $20 \%$ decrease of the original: $0.8 \times 40=£ 32$.
7. The sale price is $50 \%$ of the original price. Rita gets $10 \%$ off this price which is $5 \%$ of the original price. She gets $55 \%$ off the original price and not $60 \%$.
8. $\frac{450}{0.5 \times 0.6}=1500 \mathrm{ml}=1.5$ litres
9. $20 \%$ discount
10. $32 \%$

Extension

| Year | New price |
| :---: | :---: |
| 0 | $£ 20,300.00$ |
| 1 | $£ 18,270.00$ |
| 2 | $£ 14,616.00$ |
| 3 | $£ 10,231.20$ |
| 4 | $£ 6,138.72$ |

So Gizela will keep the car for 3 whole years.

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[^0]| Assessment <br> Objective | Qu. | Topic | R | A | G |
| :---: | :---: | :--- | :---: | :---: | :---: |
| AO1 | 1 | Calculate a percentage of a quantity |  |  |  |
| AO1 | 2 | Convert between a fraction and a percentage |  |  |  |
| AO1 | 3 | Express one quantity as a percentage of another |  |  |  |
| AO1 | 4 | Increase, and then decrease, a quantity by a percentage |  |  |  |
| AO1 | 5 | Decrease a quantity using a percentage multiplier |  |  |  |
| AO2 | 6 | Calculate the original value after a percentage change |  |  |  |
| AO2 | 7 | Calculate a repeated percentage change |  |  |  |
| AO2 | 8 | Use multipliers to find an original value |  |  |  |
| AO3 | 9 | Calculate a percentage saving in a real-world context |  |  |  |
| AO3 | 10 | Use multipliers to work out a percentage change problem |  |  |  |


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| AO2 | 6 | Calculate the original value after a percentage change |  |  |  |
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