# 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  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 × .......  23.92

1. 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.

1. 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.

1. 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.
2. 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.
3. 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 £20 300.

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 £10 000. 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 .

I can check my workings by finding a 20% decrease of the original: .

1. 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%.
2. ml 1.5 litres
3. 20% discount
4. 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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| **Assessment Objective** | **Qu.** | **Topic** | **R** | **A** | **G** |  | **Assessment Objective** | **Qu.** | **Topic** | **R** | **A** | **G** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| AO1 | 1 | Calculate a percentage of a quantity |  |  |  |  | AO1 | 1 | Calculate a percentage of a quantity |  |  |  |
| AO1 | 2 | Convert between a fraction and a percentage |  |  |  |  | AO1 | 2 | Convert between a fraction and a percentage |  |  |  |
| AO1 | 3 | Express one quantity as a percentage of another |  |  |  |  | AO1 | 3 | Express one quantity as a percentage of another |  |  |  |
| AO1 | 4 | Increase, and then decrease, a quantity by a percentage  |  |  |  |  | AO1 | 4 | Increase, and then decrease, a quantity by a percentage  |  |  |  |
| AO1 | 5 | Decrease a quantity using a percentage multiplier |  |  |  |  | AO1 | 5 | Decrease a quantity using a percentage multiplier |  |  |  |
| AO2 | 6 | Calculate the original value after a percentage change |  |  |  |  | AO2 | 6 | Calculate the original value after a percentage change |  |  |  |
| AO2 | 7 | Calculate a repeated percentage change |  |  |  |  | AO2 | 7 | Calculate a repeated percentage change |  |  |  |
| AO2 | 8 | Use multipliers to find an original value |  |  |  |  | AO2 | 8 | Use multipliers to find an original value |  |  |  |
| AO3 | 9 | Calculate a percentage saving in a real-world context |  |  |  |  | AO3 | 9 | Calculate a percentage saving in a real-world context |  |  |  |
| AO3 | 10 | Use multipliers to work out a percentage change problem |  |  |  |  | AO3 | 10 | Use multipliers to work out a percentage change problem |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
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| AO1 | 5 | Decrease a quantity using a percentage multiplier |  |  |  |  | AO1 | 5 | Decrease a quantity using a percentage multiplier |  |  |  |
| AO2 | 6 | Calculate the original value after a percentage change |  |  |  |  | AO2 | 6 | Calculate the original value after a percentage change |  |  |  |
| AO2 | 7 | Calculate a repeated percentage change |  |  |  |  | AO2 | 7 | Calculate a repeated percentage change |  |  |  |
| AO2 | 8 | Use multipliers to find an original value |  |  |  |  | AO2 | 8 | Use multipliers to find an original value |  |  |  |
| AO3 | 9 | Calculate a percentage saving in a real-world context |  |  |  |  | AO3 | 9 | Calculate a percentage saving in a real-world context |  |  |  |
| AO3 | 10 | Use multipliers to work out a percentage change problem |  |  |  |  | AO3 | 10 | Use multipliers to work out a percentage change problem |  |  |  |