

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%.

$$26 \times \dots\dots = 23.92$$

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 £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.



GCSE (9–1) MATHEMATICS

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. $\frac{450}{0.5 \times 0.6} = 1500 \text{ ml} = 1.5 \text{ litres}$
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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Assessment 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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