



**Test Papers
Hub.**

GCSE Mathematics (Higher) Mock 1 Practice Paper 3

Paper 3 — Calculator

Paper 3 · Calculator · 80 marks · 1 hour 30 minutes · 27 questions

How to use this booklet

- You may use a calculator on this paper.
- Answer ALL questions in the spaces provided. You must show all your working: marks are awarded for correct method as well as the final answer.
- Diagrams are not accurately drawn unless otherwise stated. Take $\pi = 3.142$ only if a question tells you to; otherwise use your calculator's π button.
- The total mark for this paper is 80. The marks for each question are shown in brackets. Allow 1 hour 30 minutes.
- Worked solutions follow the paper: every question has step-by-step working, a key takeaway and the topic it tests.

ANSWER ALL QUESTIONS

80 marks · 1 hour 30 minutes

Write your answers in the spaces provided. Show your working. Diagrams are NOT accurately drawn.

Question 1 (2 marks)

Simplify $3x^3 \times 3x^2$.

Answer _____

Question 2 (4 marks)

(a) Write an expression, in terms of x , for the perimeter of the rectangle. Simplify your answer. [2 marks]

Answer _____

(b) The perimeter is 18 cm. Work out the value of x . [2 marks]

Answer _____

Question 3 (3 marks)

A prize of £150 is shared between three people in the ratio 1 : 3 : 6. Work out the largest share.

Answer _____ £

Question 4 (3 marks)

Expand and simplify $(x + 5)(4x + 2)$.

Answer _____

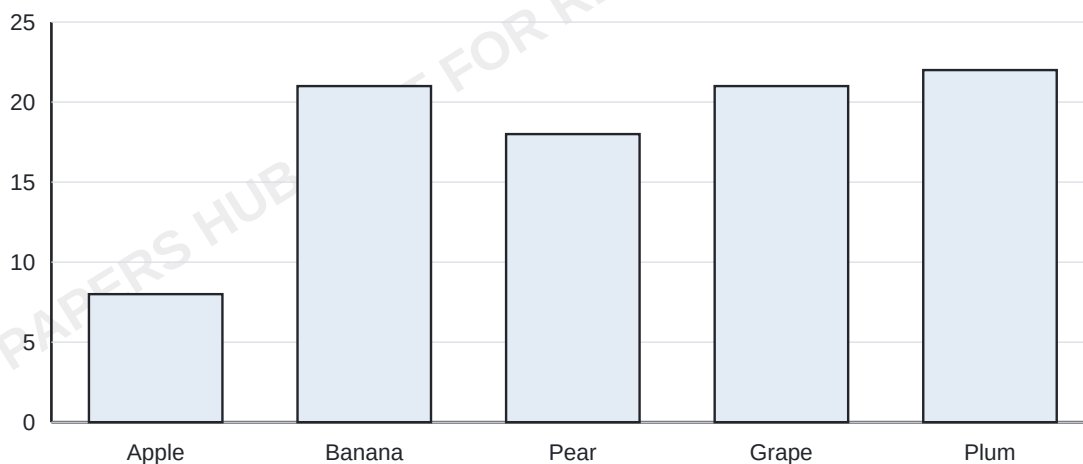
Question 5 (3 marks)

The price of a coat is £450. In a price rise it goes up by 30%. Work out the new price.

Answer _____ £

Question 6 (3 marks)

Frequency



(a) Write down the number for Plum. [1 mark]

Answer _____

WORKED SOLUTIONS

Answers & worked solutions

ANSWER ALL QUESTIONS

Question 1 (2 marks) [Simplifying expressions]

Simplify $3x^3 \times 3x^2$.

Answer: $9x^5$

- Multiply the numbers: $3 \times 3 = 9$.
- Multiply the letters by ADDING the powers: $x^3 \times x^2 = x^{(3+2)} = x^5$.
- Answer: $9x^5$.

LOS: Algebra — Simplifying expressions

KEY TAKEAWAY

Multiplying terms: multiply the numbers, add the powers of each letter.

Question 2 (4 marks) [Forming expressions]

(a) Write an expression, in terms of x , for the perimeter of the rectangle. Simplify your answer.

(a) Answer: $(2x + 10)$ cm

- Perimeter = $2 \times \text{length} + 2 \times \text{width} = 2(x + 3) + 2 \times 2$.
- $= 2x + 6 + 4 = 2x + 10$.

(b) The perimeter is 18 cm. Work out the value of x .

(b) Answer: $x = 4$

- Set the expression equal to 18: $2x + 10 = 18$.
- $2x = 18 - 10 = 8$, so $x = 4$.

LOS: Algebra — Forming expressions

KEY TAKEAWAY

Turn words into algebra: 'more than' means add, 'times as' means multiply; then simplify by collecting like terms.

Question 3 (3 marks) [Ratio]

A prize of £150 is shared between three people in the ratio 1 : 3 : 6. Work out the largest share.

Answer: £90

- Add the parts: $1 + 3 + 6 = 10$.
- One part = $£150 \div 10 = £15$.
- The largest share is 6 parts: $6 \times £15 = £90$.

LOS: Ratio, proportion and rates of change — Ratio