



**Test Papers
Hub.**

GCSE Mathematics (Higher) Mock 1 Practice Paper 2

Paper 2 — Calculator

Paper 2 · Calculator · 80 marks · 1 hour 30 minutes · 25 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 (3 marks)

Expand and simplify $(3x - 1)(2x - 8)$.

Answer _____

Question 2 (5 marks)

(a) Write 924 and 182 as products of their prime factors. [2 marks]

Answer _____

(b) Hence find the HCF and the LCM of 924 and 182. [3 marks]

Answer _____

Question 3 (3 marks)

The price of a jacket is £90. In a price rise it goes up by 25%. Work out the new price.

Answer _____ £

Question 4 (3 marks)

Factorise $4x^2 + 7x + 3$.

Answer _____

Question 5 (3 marks)

A map has a scale of 1 : 20,000. Two towns are 3.5 cm apart on the map. Work out the real distance between the towns, in kilometres.

Answer _____ km

Question 6 (3 marks)

The ratio of boys to girls in a club is 1 : 5. There are 32 more girls than boys. Work out how many children are in the club.

Answer _____

WORKED SOLUTIONS

Answers & worked solutions

ANSWER ALL QUESTIONS

Question 1 (3 marks) [Expanding brackets]

Expand and simplify $(3x - 1)(2x - 8)$.

Answer: $6x^2 - 26x + 8$

- Multiply each term in the first bracket by each term in the second (F-O-I-L: First, Outer, Inner, Last).
- First: $3x \times 2x = 6x^2$.
- Outer: $3x \times -8 = -24x$.
- Inner: $-1 \times 2x = -2x$.
- Last: $-1 \times -8 = 8$.
- Collect the two x terms: $(-24x) + (-2x) = -26x$.
- Answer: $6x^2 - 26x + 8$.

LOS: Algebra — Expanding brackets

KEY TAKEAWAY

Double brackets: every term in one bracket multiplies every term in the other (4 products), then collect the x terms.

Question 2 (5 marks) [HCF and LCM]

(a) Write 924 and 182 as products of their prime factors.

(a) Answer: $924 = 2^2 \times 3 \times 7 \times 11$; $182 = 2 \times 7 \times 13$

- Divide by the smallest prime that goes in, repeatedly, until you reach 1.
- $924 = 2^2 \times 3 \times 7 \times 11$
- $182 = 2 \times 7 \times 13$

(b) Hence find the HCF and the LCM of 924 and 182.

(b) Answer: HCF = 14, LCM = 12012

- HCF: take only the primes that appear in BOTH, each to the LOWEST power: $2 \times 7 = 14$.
- LCM: take every prime that appears in EITHER, each to the HIGHEST power: $2^2 \times 3 \times 7 \times 11 \times 13 = 12012$.

LOS: Number — HCF and LCM

KEY TAKEAWAY

Prime factor form: HCF takes the lowest powers of shared primes, LCM takes the highest powers of all primes.