

FREE SAMPLE: THE FIRST 3 QUESTIONS

PAPER 1

90 marks · Questions 1 – 26 · short-answer questions · 2 h 15 min

Answer ALL questions. Show your working: omission of essential working will result in loss of marks. A calculator may be used. Give non-exact numerical answers correct to 3 significant figures, or 1 decimal place in the case of angles in degrees, unless a different level of accuracy is specified. Use the calculator value of π , or 3.142, unless the answer is required in terms of π . Marks are shown in brackets.

Question 1 (2 marks)

Factorise completely $18x - 48$.

Answer _____

Question 2 (2 marks)

(a) Write 0.037 in standard form.

Answer _____

Question 3 (3 marks)

Change 144 km/h to m/s.

Answer _____

THE WORKED ANSWERS TO THOSE 3 QUESTIONS

Question 1 (2 marks) [Algebraic manipulation]

Factorise completely $18x - 48$.

Answer: $6(3x - 8)$

- Find the largest number that divides both terms: 6.
- Divide each term by 6: $3x - 8$.
- Answer: $6(3x - 8)$.

LOS: Number and Algebra · Algebraic manipulation

KEY TAKEAWAY

Take out the highest common factor first.

Question 2 (2 marks) [Standard form]

(a) Write 0.037 in standard form.

(a) Answer: 3.7×10^{-2}

- Move the decimal point so that there is one non-zero digit before it: 3.7.
- The decimal point moved 2 places to the right, so the power of 10 is -2 .
- 3.7×10^{-2}

LOS: Number and Algebra · Standard form

KEY TAKEAWAY

Standard form is $A \times 10^n$ with $1 \leq A < 10$; count how far the decimal point moves.

Question 3 (3 marks) [Rate and speed]

Change 144 km/h to m/s.

Answer: 40 m/s

- $1 \text{ km} = 1000 \text{ m}$ and $1 \text{ h} = 3600 \text{ s}$.
- $144 \text{ km/h} = 144 \times 1000 \div 3600 \text{ m/s} = 40 \text{ m/s}$.

LOS: Number and Algebra · Rate and speed

KEY TAKEAWAY

m/s to km/h: multiply by 3.6. km/h to m/s: divide by 3.6.