



Test Papers
Hub.

HAST Year 11 Entry Practice Paper 1

Mathematical Reasoning

35 questions · 4 options each (A–D) · 40 minutes · No calculator

How to use this booklet

- There are 35 questions in this section. For each question there are four possible answers, A, B, C and D. Choose the one correct answer.
- This section tests mathematical reasoning: problem solving with number, algebra, measurement, space and data. Use rough paper for working.
- Calculators are not allowed. You have 40 minutes. You will not lose marks for wrong answers, so attempt every question.

MATHEMATICAL REASONING — 35 QUESTIONS

Multiple choice · 40 minutes

Work through the questions in order. If a question stalls you, move on and come back. Then check your work against the worked solutions.

1. Write $4\frac{5}{8}$ as an improper fraction.

- A $\frac{37}{4}$
- B $\frac{28}{8}$
- C $\frac{37}{8}$
- D $\frac{9}{8}$

2. Estimate 936×97 by rounding each number to its leading digit (first digit).

- A 900,000
- B 90,000
- C 1,000
- D 9,000

3. A prize of \$130 is divided between two people in the ratio 5 : 8. What is the larger share, in dollars?

- A 80
- B 65
- C 90
- D 50

4. Write the ratio 40 : 48 in its simplest form.

- A 5 : 6
- B 6 : 6
- C 10 : 12
- D 6 : 5

5. A meal costs \$250 before tax. A 25% sales tax is added, and then a 10% tip is calculated on the pre-tax price. What is the total paid, in dollars?

- A \$343.75
- B \$87.50
- C \$285.00
- D \$337.50

6. The mean of 8 numbers is 37. Of these, 7 numbers are 42, 37, 38, 41, 39, 37, 42. What is the remaining number?

- A 28
- B 54
- C 20
- D 37

7. What is $\frac{2}{3} \times \frac{2}{5}$? Give the answer in simplest form.

- A $\frac{4}{15}$
- B $\frac{1}{2}$
- C $\frac{1}{3}$
- D $\frac{16}{15}$

8. If $f(x) = 2x^2 + 6x - 2$, what is $f(-2)$?

- A 2
- B -6
- C -22
- D -2

9. What is 5% of 360?

- A 342
- B 18
- C 72
- D 1,800

MATHEMATICAL REASONING — 35 QUESTIONS

Answers & worked solutions

Answer Key

1	C	2	B	3	A	4	A	5	D	6	C
7	A	8	B	9	B	10	A	11	C	12	D
13	D	14	C	15	C	16	B	17	B	18	D
19	D	20	C	21	D	22	A	23	D	24	C
25	D	26	B	27	B	28	C	29	A	30	A
31	B	32	C	33	B	34	A	35	A		

1. Write $4\frac{5}{8}$ as an improper fraction. [Fractions]

Correct answer: C — $\frac{37}{8}$

- Whole $\times$ bottom: $4 \times 8 = 32$.
- Add the top: $32 + 5 = 37$.
- The bottom stays 8: $\frac{37}{8}$.
- Why the other options are wrong:
 - A ($\frac{37}{4}$): The denominator stays the same.
 - B ($\frac{28}{8}$): Whole $\times$ denominator, then add the top.
 - D ($\frac{9}{8}$): Multiply the whole number by the denominator first.

LOS: Mathematics: fractions

KEY TAKEAWAY

Mixed to improper: (whole $\times$ denominator + numerator) over the same denominator.

2. Estimate 936×97 by rounding each number to its leading digit (first digit). [Estimation]

Correct answer: B — 90,000

- Round 936 to 900 and 97 to 100.
- $900 \times 100 = 90000$.
- Why the other options are wrong:
 - A (900,000): This is the correct answer (90,000) multiplied by 10: a scaling factor was applied (or a factor missed) that the working above does not use.
 - C (1,000): Multiply, don't add.
 - D (9,000): This is the correct answer (90,000) divided by 10: a scaling factor was applied (or a factor missed) that the working above does not use.

LOS: Mathematics: estimation