ETON COLLEGE

13+ Maths Entrance Examination

Practice Paper — 2025 Style

Time allowed: 60 minutes **Total marks:** 50 **Questions:** 5

INSTRUCTIONS

- Answer ALL questions.
- Show your working where required — marks may be awarded for method.
- Write your answers clearly in the spaces provided.
- You may NOT use a calculator unless stated otherwise.
- Check your work if you finish early.

Question 1

[3 marks]

Express 0.36■ (0.3666...) as a fraction in its simplest form.

Answer: .....

Working space:

Question 2

[3 marks]

The sum of three consecutive odd numbers is 87. What is the largest of the three numbers?

Answer: .....

Working space:

Question 3

[3 marks]

A cube has surface area 294 cm². What is its volume?

A 343 cm³
B 216 cm³
C 512 cm³
D 125 cm³

Question 4

[4 marks]

Solve the simultaneous equations:
$2x + 3y = 16$
$5x – 3y = 5$

Answer: .....

Working space:

Question 5

[3 marks]

A train travels at 90 km/h. A car travels at 75 km/h. Both start from the same point at the same time travelling in the same direction. After how many minutes will they be 5 km apart?

Answer: .....

Working space:

— End of Paper —

ANSWER KEY & WORKED SOLUTIONS

Eton College — 13+ Maths Practice Paper (King's Scholarship Style)

QUICK ANSWERS

Q	Answer	Marks
1	11/30	3
2	31	3
3	343 cm³	3
4	x=3, y=10/3	4
5	20 minutes	3
Total		**50**

WORKED SOLUTIONS

Question 1 — Answer: 11/30

Express 0.36■ (0.3666...) as a fraction in its simplest form.

1. Let x = 0.3666...
2. 10x = 3.666...
3. 100x = 36.666...
4. 100x – 10x = 36.666... – 3.666... = 33.
5. 90x = 33, so x = 33/90 = 11/30.

To convert a recurring decimal to a fraction, multiply by powers of 10 to align the recurring part, then subtract to eliminate it.

Question 2 — Answer: 31

The sum of three consecutive odd numbers is 87. What is the largest of the three numbers?

1. Let the three consecutive odd numbers be n, n+2, n+4.
2. n + (n+2) + (n+4) = 87.
3. 3n + 6 = 87.
4. 3n = 81, so n = 27.
5. The three numbers are 27, 29, 31.
6. The largest is 31.

Consecutive odd numbers differ by 2. Set up an algebraic equation with the middle number, or use the fact that the middle number equals the average: 87 ÷ 3 = 29.

Question 3 — Answer: 343 cm³

A cube has surface area 294 cm². What is its volume?

1. A cube has 6 faces. Area of one face: 294 ÷ 6 = 49 cm².
2. Side length: √49 = 7 cm.
3. Volume: $7^3 = 7 \times 7 \times 7 = 343$ cm³.

Surface area of a cube = $6s^2$. Divide by 6 to get s^2, then square root to get s, then cube to get volume.

Question 4 — Answer: x=3, y=10/3

Solve the simultaneous equations: 2x + 3y = 16 5x – 3y = 5

1. Add the two equations: (2x + 3y) + (5x – 3y) = 16 + 5.
2. 7x = 21, so x = 3.
3. Substitute into first equation: 2(3) + 3y = 16.
4. 6 + 3y = 16, 3y = 10, y = 10/3.

When one variable has equal and opposite coefficients, add the equations to eliminate it. Then substitute back to find the other variable.

Question 5 — Answer: 20 minutes

A train travels at 90 km/h. A car travels at 75 km/h. Both start from the same point at the same time travelling in the ...

1. Relative speed = 90 – 75 = 15 km/h.
2. Time to be 5 km apart: distance ÷ relative speed = 5 ÷ 15 = 1/3 hour.
3. 1/3 hour = 20 minutes.

When two objects travel in the same direction, their separation increases at the difference of their speeds. Use time = distance ÷ speed.
