Haileybury

Mathematics
Entrance exam for: 13+ (Year 6)
Time allowed: 45 minutes
Total marks: 50

Please read this information before the examination starts

- Answer **all** questions
- Please write your solutions in the answer book provided.
- You may **not** use a calculator.

This paper is split into 2 sections of generally increasing difficulty.

Section A (20 marks)
Section A is designed to test core skills and understanding. You should answer each question in the answer booklet provided.

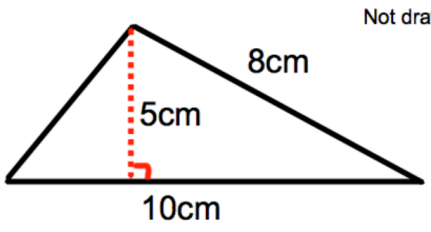
Section B (30 marks)
Section B contains a greater element of problem solving. It contains a mixture of multiple choice and written answer questions. You should answer the questions in the space provided in the answer booklet and you will be marked on the presentation of your written work in addition to your final solution, answers without supporting work/calculations may not score full marks.

Section A

Each of the following questions are worth 1 mark

Write your answers in the answer booklet provided

1	Calculate 8×14
2	What is the value of the digit 9 in the number 21917?
3	How many metres is 2.3 km?
4	Calculate $3014 + 518$.
5	Calculate $144 \div 6$.
6	Find 20% of 120.
7	Calculate $4 - 8 \times 2 + 3$
8	Calculate $8^2 - 5$.
9	Calculate $231 - 26$.
10	Calculate $3.12 + 7.4$

11	Calculate $\frac{3}{10} + \frac{2}{5}$.
12	Solve $5x = 30$.
13	Solve $3x - 8 = 1$.
14	Write $\frac{3}{4}$ as a decimal.
15	A train leaves London at 09:43 and arrives in Leeds at 13:25. How long does the journey take in hours and minutes?
16	David has red and blue beads in the ratio $2:3$. He has 20 beads in total, how many red beads does he have?
17	A cake costs £1.34. Carol buys 6 cakes, how much does she pay in total?
18	What is the next number in this sequence? $1, \quad 9, \quad 25, \quad 49, \quad ....$
19	What is the area of the triangle below? Not drawn accurately 
20	I think of a number, subtract 4, multiply by 3 and add 12. I start with 7, what number do I end up with?

Section B

Each of these multiple-choice questions is worth 2 marks.

You must provide clear reasoning for your solution in order to gain both marks.

1	One lap of a standard running track is 400 m. How many laps does each athlete run in a 10,000 m race? A: 15 B: 20 C: 25 D: 30 E: 35
2	Fully simplify $\frac{2+6}{2\times6}$. A: $\frac{1}{3}$ B: $\frac{2}{3}$ C: 1 D: $\frac{2}{6}$ E: $\frac{8}{12}$
3	Given that $6.4 \times 8.8 = 56.32$, find the value of 12.8×2.2. A: 23.16 B: 28.16 C: 56.32 D: 112.64 E: 563.2
4	What is the value of $\frac{3+9+15+21+27}{1+3+5+7+9}$? A: 2 B: 3 C: 4 D: 5 E: 10
5	14400 seconds is equivalent to which of the following periods of time? A: 20 minutes B: 2 hours C: 4 hours D: 1 day E: 1 week

For the following questions you should show all of your working clearly.

Correct answers without working may not receive full marks.

Please write your answers in the answer booklet provided.

6	I make 5 litres of ice cream and split it between eight containers equally. How many millilitres of ice cream does each container hold?	**[3]**
7	Given that $a = 5, b = -2$ and $c = -6$ find the value of: (a) $2a + 3b$ (b) $(ab - c)^2$	**[2]** **[2]**
8	Miranda has baked a cake. Her friend Pamela eats $\frac{1}{3}$ of it, Fiona eats $\frac{1}{12}$ and Georgina eats $\frac{1}{8}$. What fraction of the cake remains?	**[4]**
9	I am painting a wall that is 4.8 m by 2 m, I need to apply 2 coats of paint to the wall. Each tin of paint can cover an area of 6 m^2. How many tins of paint will I need to buy to paint the wall?	**[4]**
10	I think of a number, triple it, add seven and then halve what I get. (a) If the number I think of first of all is *n*, what is my answer in terms of *n*? (b) I think of a number, apply this process and end up with 29. What number did I start with?	**[2]** **[3]**
END OF EXAM		