Name:



Junior Entrance Examination 2013 Second Form Entry

Mathematics

Section A: 30 minutes No calculators allowed

- Write ALL your working and answers on this paper. Show enough working on each question to make it clear how you reached your answer.
 <u>Underline your answers.</u>
- Do not spend too long working on any particular question. Do not worry if you do not manage to complete every question in each section.
- You may work in pen or pencil.

Section A NO CALCULATORS

- 1. Work out:
 - (a) 691 + 39
 - (b) 68 × 19

(c) 11696 ÷ 8

(d) 80% of 80

(e)
$$\frac{7}{12} + \frac{3}{8}$$

(f)
$$4\frac{1}{6} \div 1\frac{2}{3}$$

- 2. Work out the following:
 - (a) 3 10 =
 - (b) $3 \times (-10) =$
 - (c) 4 5 + 6 7 =
 - (d) $(-3) \times (-4) =$
- 3. Fill in the gaps with $+ \div \times$ () to make these statements work:
 - (a) 5 3 9 = 6
 - (b) 5 3 9 = 32
 - (c) $9 \quad 3 \quad 3 = 8$
- 4. Complete the following table:

Fraction (in its simplest form)	Percentage	Decimal
$\frac{1}{5}$		0.2
	65%	
$1\frac{3}{4}$		
		0.003

5. My train was scheduled to leave at 16:20 and to arrive at 17:05. However, it left 6 mins late and the journey took 42 minutes. What time did I arrive?

Fill in	Fill in the next three terms of the following sequences	
(a)	4, 7, 10, 13,	
(b)	95, 87, 79, 71,	
(c)	32, 16, 8, 4,	
(d)	2, 3, 5, 7, 11,	

- 7. Simplify the following algebraic expressions:
 - (a) x + x + x + x + x =
 - (b) 5 + x + 5 + x =
 - (c) $5 \times x \times x =$

6.

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Section B: 30 minutes Calculators allowed

- Write ALL your working and answers on this paper. Show enough working on each question to make it clear how you reached your answer.
 <u>Underline your answers.</u>
- Do not spend too long working on any particular question. Do not worry if you do not manage to complete every question in each section.
- You may work in pen or pencil.

Section B You may use a calculator for this section.

- 1. (a) Name the two shapes in the diagram below: and
 - (b) Find the area of the shape below (which is not drawn to scale):



 A chocolate cake recipe contains several ingredients, including cocoa powder and butter. All the ingredients used together weigh 580g. The ratio of cocoa : butter : other ingredients is 1 : 3 : 16.

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(a) How much butter is in the cake?
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(b) If there is 261g of flour in the cake, what is the ratio of flour to butter?

3. (a) If I score 38 out of 75 in a Chemistry test, what percentage did I score? Give your answer correct to one decimal place.

(b) Decrease £820 by 12 %.

- 4. A model car travels 1200 m in 15 minutes.
 - (a) How far would it travel in 2 hours?
 - (b) How long would it take to travel 5 km?
- 5. James is organising a barbecue.

There are 30 bread rolls in a pack and there are 8 sausages in a pack. He needs exactly the same number of bread rolls as sausages. What is the smallest number of each pack that he must buy? Show all your working. 6. A factorial (which has a symbol !) can be defined as follows:

 $6! = 6 \times 5 \times 4 \times 3 \times 2 \times 1$

 $10! = 10 \times 9 \times 8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1$

Work out the following:

(a) 5!

- (b) 6! 5!
- (c) $\frac{8!}{6!}$

(d) $\frac{100!}{99!2!}$

(e)
$$\frac{(x+1)!}{x!}$$

THE END

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