ST EDWARD'S
OXFORD



13+ SCHOLARSHIP EXAMINATION
2014

MATHEMATICS
Paper 1

1 hour

Name: _____

There are 70 marks available.

NO Calculators are allowed.

Write all answers, including your workings, in this booklet.

1. (a) Complete the sentences below:

$\frac{1}{6}$ is half of .....

$\frac{1}{6}$ is two thirds of .....

There are ..... sixths in $3\frac{2}{3}$

3 marks

(b) Write these decimals as fractions in their lowest terms:

0.125 = …….

0.12 = …….

0.0625= …….

3 marks

(c) A rectangle has width $\frac{4}{5}$ metres long and an area of $\frac{1}{3}$ m^2. What is its length?

…….. metres

2 marks

(d) Calculate the following:

$\frac{1}{2} + \frac{1}{5} + \frac{1}{10} + \frac{1}{20}$

……. 2 marks

TOTAL MARKS 10

2. Complete the sentences:

(i) **2 m 12cm = _____ mm**

(ii) **4 h 12 min = _____ hours**

(iii) **20 km/h = _____ m/s**

(iv) **40cm^3 = _____ m^3**

TOTAL MARKS 4

3. This question is about a standard clock face.

a) What angle does the minute hand on a clock turn through between 2:30 and 3:30?

…… 1 mark

b) What angle does the hour hand turn through between 2:20 and 3:30?

…… 1 mark

c) What is the angle between the two hands of the clock at 2:30?

…… 2 marks

d) What is the angle between the two hands of a clock at 6:10? Give another time when the angle is the same as this.

Angle is …… A different time with the same angle is……..

4 marks

TOTAL MARKS 8

4. a) Solve this equation: $75 + 2t = 100 - 2t$

.....

2 marks

b) Simplify this expression: $7(5y - 3) - 10 + 2(3y - 5) - 3(5-7y)$

.....

2 marks

c) Factorise this expression: $9x^2y - 3xy^2 + 3xy$

.....

3 marks

d) Simplify this expression: $(2x - 3y)^2$

.....

3 marks

TOTAL MARKS 10

5. Fill in the boxes to make these statements correct:

$2 \quad = 8$

$64 = \quad ^{3}$

$3^2 + 4^2 =$

TOTAL MARKS 4

6. a) What is 55% of 60?

b) What is 125% of 24?

d) Which calculation below decreases a number by 30% - circle the correct one.

$\times 70$ $\div 30$ $\times 1.3$ $\times 0.7$ -30

TOTAL MARKS 3

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7. A taxi costs £2.20 for the first 1.5km and £0.14 for each additional 100m.

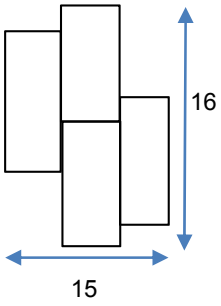
a. What would it cost to travel 4 km?

b. If I pay £7.66 for a journey, how far do I travel?

TOTAL MARKS 6

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8. This drawing is made up of 4 identical rectangles (*not to scale*). Find the area and the perimeter.



Area=……. Perimeter = ……

TOTAL MARKS 6

9. The following questions all involve ratio:

a) Divide £9.60 into three portions, in the ratio 5:2:9.

b) Two numbers are in the ratio 2:3 and the sum of the two numbers is 50. What are the two numbers?

c) X, Y and Z share some sweets between them in the ratio 2:3:5. Z receives 60 more sweets than X. Find the total number of sweets shared between the three boys.

TOTAL MARKS 6

10. (a) Estimate the answer to $\frac{8.62 + 22.1}{5.23}$

Give your answer to **1 significant figure**.

.....

1 mark

(b) **Estimate** the answer to $\frac{28.6 \times 24.4}{5.67 \times 4.02}$

.....

1 mark

TOTAL MARKS 2

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11. (a) Each of these calculations has the same answer, **60.** Fill in the gaps:

2.4 × 25 = 60	**600 ÷ 10 = 60**
0.24 × ……. = 60	6 ÷ ……. = 60
2400 × ……. = 60	0.06 ÷ ……. = 60

TOTAL MARKS 4

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12. Find the values of a and b when $\boldsymbol{p = -2}$

$$a = \frac{3p^3}{2}$$

$a =$ .....

2 mark

$$b = \frac{2p^2(p-3)}{7p}$$

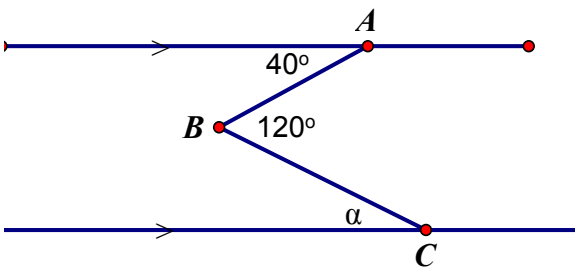
$b =$ .....

2 mark

TOTAL MARKS 4

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13. Calculate the size of the angle marked α:



TOTAL MARKS 3

END OF TEST