

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 $\frac{1}{3}$ m². 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) $2\text{ m } 12\text{ cm} = \underline{\hspace{2cm}}$ mm

(ii) $4\text{ h } 12\text{ min} = \underline{\hspace{2cm}}$ hours

(iii) $20\text{ km/h} = \underline{\hspace{2cm}}$ m/s

(iv) $40\text{ cm}^3 = \underline{\hspace{2cm}}$ m³

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:

$$2 \quad = \quad 8$$

$$64 = \quad ^3$$

$$3^2 + 4^2 =$$

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

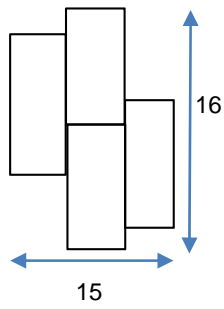
TOTAL MARKS 3

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

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

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

$2.4 \times 25 = 60$	$600 \div 10 = 60$
$0.24 \times \dots = 60$	$6 \div \dots = 60$
$2400 \times \dots = 60$	$0.06 \div \dots = 60$

TOTAL MARKS 4

12. Find the values of a and b when $p = -2$

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

$$a = \dots\dots\dots$$

2 mark

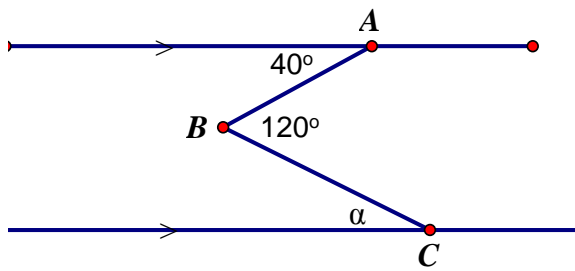
$$b = \frac{2p^2(p-3)}{7p}$$

$$b = \dots\dots\dots$$

2 mark

TOTAL MARKS 4

13. Calculate the size of the angle marked α :



TOTAL MARKS 3

END OF TEST