ST EDWARD'S

OXFORD

14+ ENTRANCE EXAMINATION
2013

MATHEMATICS

1 hour

Name: _____

There are 60 marks available.

Calculators are allowed.

Show all of your working on the paper – answers without working may not get full marks.

1. The diagram shows a wall with a door in it.

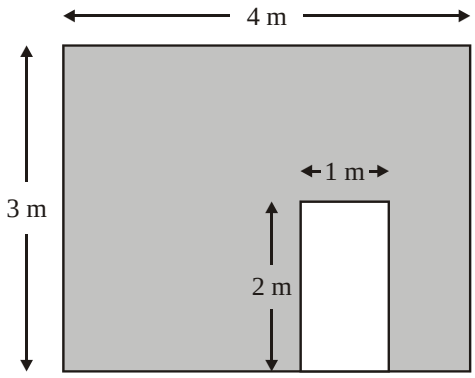

Diagram **NOT** accurately drawn

(a) Work out the shaded area.

……m^2

(3)

A builder needs **680** tiles to cover the shaded area. He buys 10% extra tiles in case he breaks some.

(b) (i) How many tiles should he buy?

……..

The tiles are sold in boxes of 50.

(ii) How many boxes of tiles are needed?

……..

(5)

(Total 8 marks)

2. Here are six numbers:

$$75\% \qquad \frac{8}{10} \qquad \frac{9}{12} \qquad 0.75 \qquad 66\frac{2}{3}\% \qquad \frac{6}{8}$$

Two of the numbers are **not** equal to $\frac{3}{4}$

Draw a circle around each of the two numbers.

(Total 2 marks)

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3. (a) Express the following numbers as products of their prime factors.

(i) 56

……

(ii) 84

……

(4)

(Total 4 marks)

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4. A school has **1200** pupils. **575** of these pupils are girls.

$\frac{2}{5}$ of the girls like sport.

$\frac{3}{5}$ of the boys like sport.

Work out the total number of pupils in the school who like sport.

.....

(Total 3 marks)

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5. Change 8 m^3 to cm^3.

..... cm^3

(Total 2 marks)

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6. Wallace bought a computer for £3000. Each year the computer depreciated by 20%.

Work out its value two years after he bought it.

£ ……

(Total 3 marks)

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7. 80 students each study one of three languages.

The two-way table shows some information about these students.

	French	**German**	**Spanish**	**Total**
Female	15			39
Male		17		41
Total	31	28		80

(a) Complete the two-way table.

(2)

One of these students is to be picked at random.

(b) Write down the probability that the student picked studies French.

……

(1)

(Total 3 marks)

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8. (a) Simplify

(i) $e + f + e + f + e$

.....

(ii) $p^2 + p^2 + p^2$

.....

(2)

(b) Work out the value of $5x + 1$ when $x = -3$

.....

(2)

(Total 4 marks)

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9. (a) Write 3.8×10^3 as an ordinary number.

.....

(1)

(b) Write the number 0.00045 in standard form.

.....

(1)

(Total 2 marks)

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10. The cost, in pounds, of hiring a car can be worked out using this rule.

Add 3 to the number of days' hire
Multiply your answer by 10

The cost of hiring a car for n days is C pounds.

Write down a formula for C in terms of n.

.....

(Total 3 marks)

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11. (a) Solve $7p + 2 = 5p + 8$

$p =$ .....

(2)

(b) Solve $6x + 2 = 4(x - 7)$

$x =$ .....

(2)

(c) Solve $\frac{15-2x}{3} = 4$

$x =$ .....

(3)

(d) Factorise $x^2 + 5x + 6$

.....

(2)

(f) Factorise $(x + y)^2 - 3(x + y)$

.....

(1)

(Total 10 marks)

12.

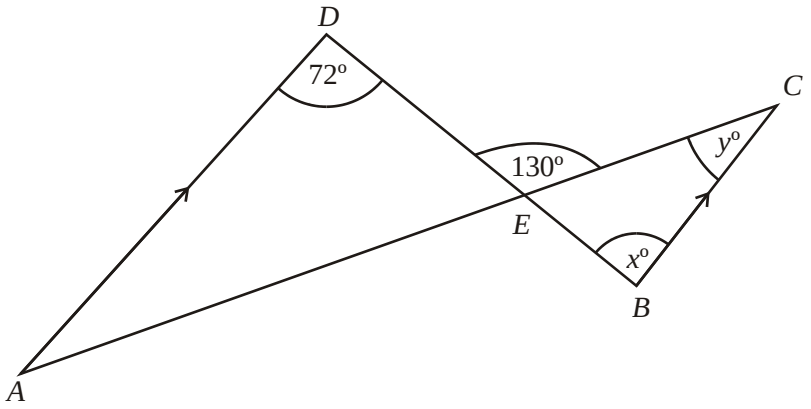

Diagram **NOT** accurately drawn

AC and *BD* are straight lines which cross at *E*. *AD* is parallel to *BC*.

(a) (i) Find the size of the angle marked *x*°.

……°.

(ii) Give a reason for your answer.

……

……

(2)

(b) (i) Find the size of the angle marked *y*°..

……°.

(ii) Give a reason for your answer.

……

……

(2)
(Total 4 marks)

13. In a sale all the normal prices are reduced by 18%. In the sale Mandy pays £12.71 for a hat.

Calculate the normal price of the hat.

£.....

(Total 3 marks)

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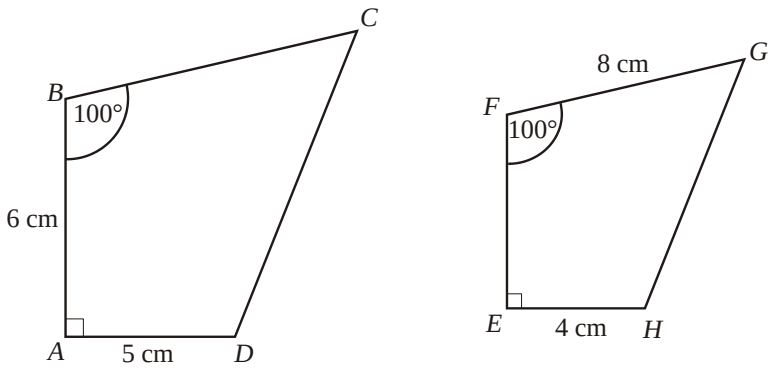
14. Shapes *ABCD* and *EFGH* are mathematically similar.

Diagrams **NOT** accurately drawn



(i) Calculate the length of *BC*.

BC = ... cm

(ii) Calculate the length of *EF*.

EF = ... cm

(Total 5 marks)

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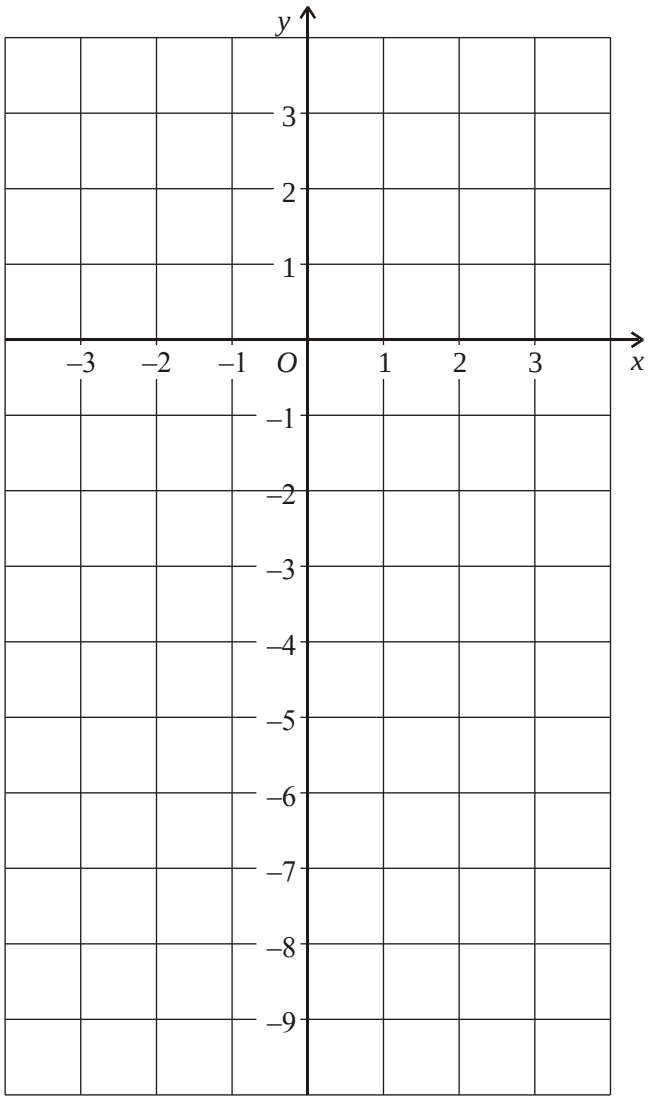
15. (a) Complete the table of values for $y = 2x - 3$

x	–3	–2	–1	0	1	2	3
y	–9		–5				3

(2)

(b) On the grid, draw the graph of $y = 2x - 3$



(2)
(Total 4 marks)

END OF TEST