

Please write clearly in block capitals.

Centre number

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Candidate number

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Surname

Forename(s)

Candidate signature

GCSE MATHEMATICS

Grades 3-4

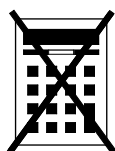
Non-calculator Test 1

Time allowed: 1 hour

Materials

For this paper you must have:

- mathematical instruments.



You must **not** use a calculator.

Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 46.
- You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer book.

Advice

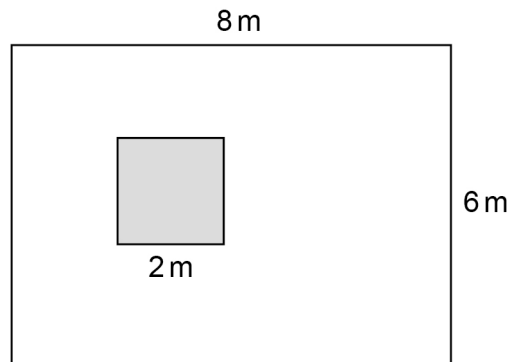
- In all calculations, show clearly how you work out your answer.

For Examiner's Use	
Pages	Mark
2-3	
4-5	
6-7	
8-9	
10-11	
12-13	
14	
TOTAL	

Answer **all** questions in the spaces provided**1**

A rectangular carpet measures 8 m by 6 m

Part of the carpet is covered by a square rug of length 2 m

Not drawn
accuratelyShow that $\frac{1}{12}$ of the carpet is covered by the rug.**[2 marks]**

2

In a school show,

girls : boys = 1 : 1

girls who sing : girls who do not sing = 1 : 2

8 girls **sing** in the show.

How many students are in the show altogether?

[3 marks]

Answer _____

3

A pack of cards has 72 cards.

 $\frac{5}{9}$ are yellow.

Work out the number of yellow cards.

[2 marks]

Answer _____

7

Turn over ►

4 Divide 62 in the ratio 3 : 7

[3 marks]

Answer _____ and _____

5 Write 0.85 as a fraction in its simplest form.

[2 marks]

Answer _____

6 $3a + b = 7$ and $6x + 8y = 40$

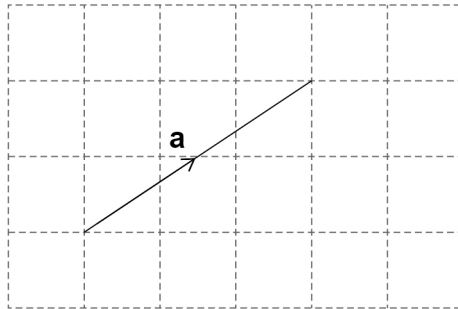
Show that $9a + 3b$ has a **greater** value than $3x + 4y$

[2 marks]



7 The diagram shows the vector **a**.

As a column vector $\mathbf{a} = \begin{pmatrix} 3 \\ 2 \end{pmatrix}$



7 (a) Work out $4\mathbf{a}$ as a column vector.

[1 mark]

Answer $\begin{pmatrix} \\ \end{pmatrix}$

7 (b) $\mathbf{a} + \mathbf{c} = \begin{pmatrix} 3 \\ 0 \end{pmatrix}$

Work out **c** as a column vector.

Circle your answer.

[1 mark]

$$\begin{pmatrix} 2 \\ 0 \end{pmatrix}$$

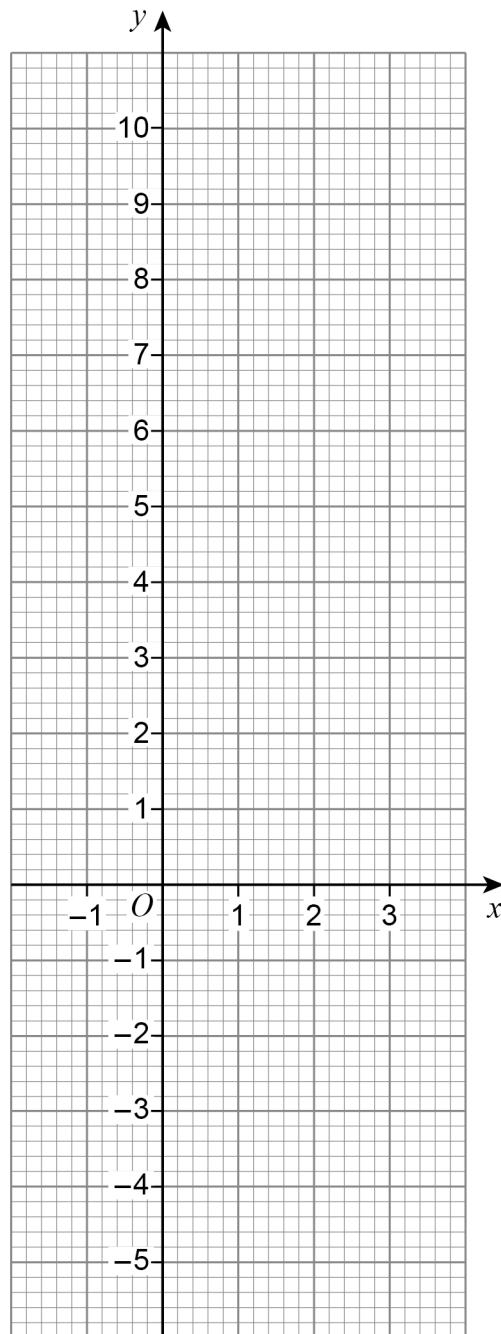
$$\begin{pmatrix} 0 \\ 2 \end{pmatrix}$$

$$\begin{pmatrix} -2 \\ 0 \end{pmatrix}$$

$$\begin{pmatrix} 0 \\ -2 \end{pmatrix}$$



8

Draw the graph of $y = 3x - 1$ for values of x from -1 to 3 **[3 marks]**

- 9** Write 36 as a product of prime factors.
Give your answer in index form.

[3 marks]

Answer _____

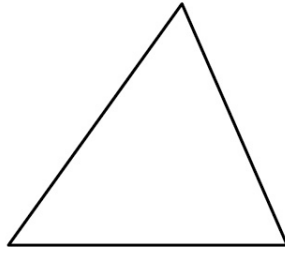
- 10** Solve $8x + 7 = 2x + 10$

[3 marks]

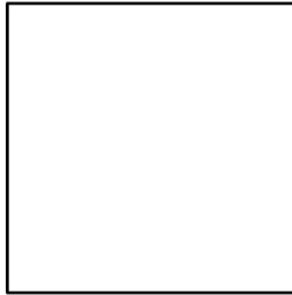
$x =$ _____



- 11 A triangle has perimeter 32 cm

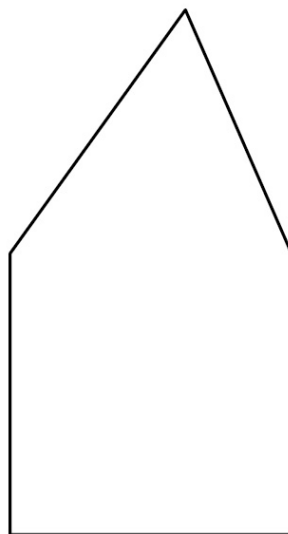


- A square has perimeter 40 cm



Not drawn
accurately

- Two sides of the shapes are put together to make a pentagon.



Not drawn
accurately

Work out the perimeter of the pentagon.

[4 marks]

Answer _____ cm

12

$$x : y = 7 : 4$$

$$x + y = 88$$

Work out the value of $x - y$

[3 marks]

Answer _____

7

Turn over ►



- 13 A football team has P points.

$$P = 3W + D$$

W is the number of wins

D is the number of draws

After 33 games a team has 53 points.

11 games were draws.

How many games has the team **lost**?

[4 marks]

Answer _____



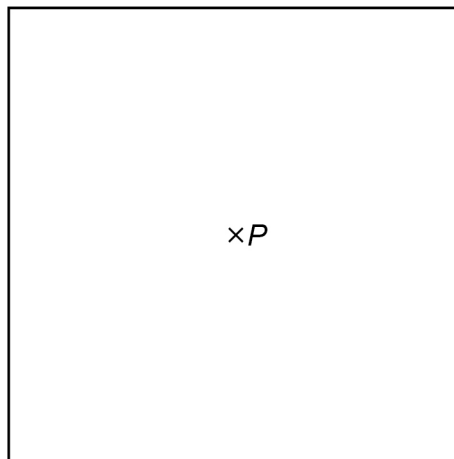
- 14** Kay wants to show all the points 3 km from point P .

Scale: 1 cm represents 1 km

$\times P$

Here is her answer.

Scale: 1 cm represents 1 km



What is wrong with her answer?

[1 mark]



- 15** Mo played 30 games of chess.
He won 18 of these games.

He played 20 more games.
He had then won 64% of **all** of his games.

How many of the 20 games did he win?

[3 marks]

Answer _____

- 16** Write 0.00097 in standard form.

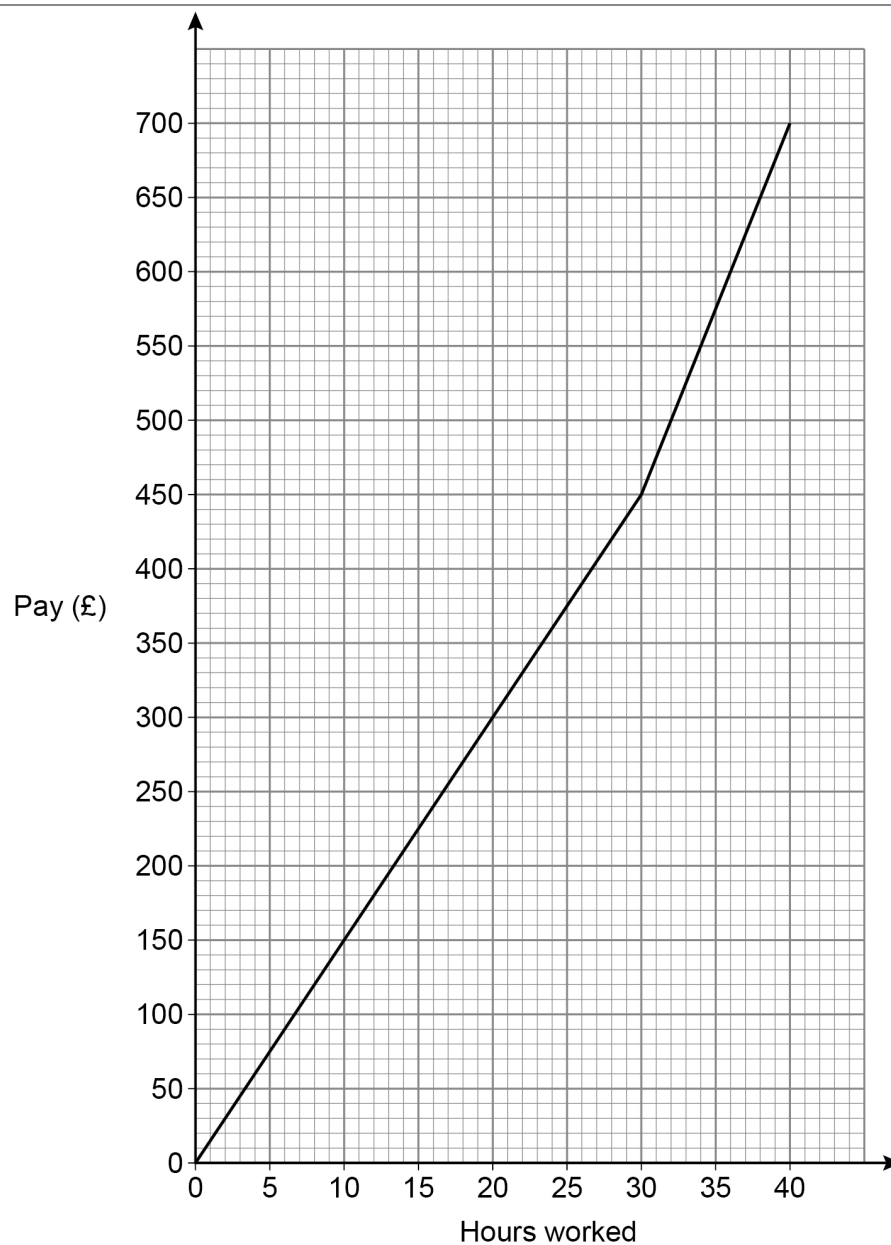
[1 mark]

Answer _____

- 17** In a week, Samir is paid
a basic hourly rate for the first 30 hours worked
an overtime hourly rate for any extra hours worked.

The graph opposite shows his pay for working up to 40 hours in a week.





Work out the ratio basic hourly rate : overtime hourly rate

Give your answer in its simplest form.

[3 marks]

Answer _____ : _____

7

Turn over ►



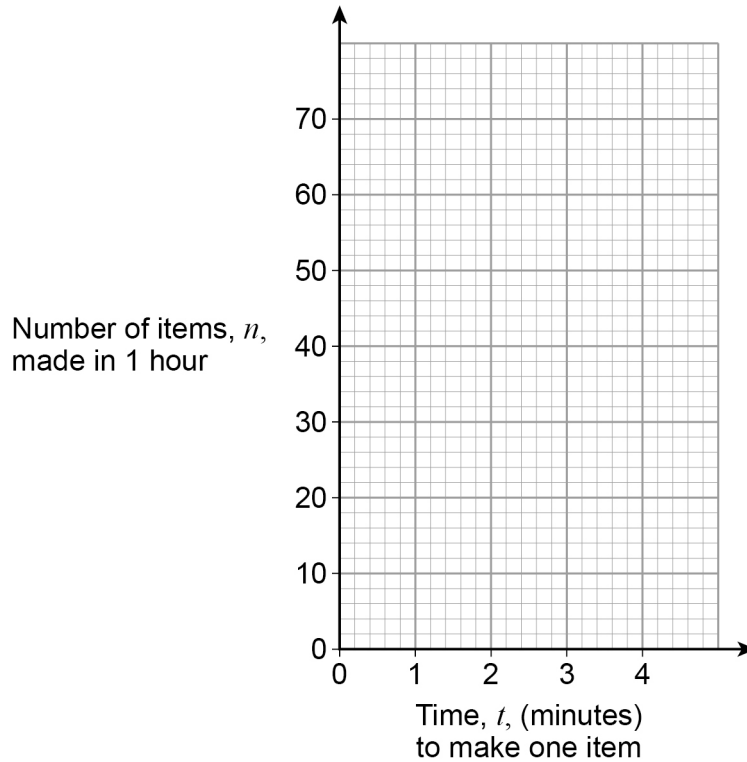
18

The number of items, n , made in 1 hour by a machine is given by $n = \frac{60}{t}$

t is the time in minutes the machine takes to make one item.

The value of t changes for different types of item.

On the grid below, draw the graph of $n = \frac{60}{t}$ for values of t from 1 to 4

[2 marks]

2

END OF QUESTIONS**Copyright Information**

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