



Surname _____

Other Names _____

Centre Number _____

Candidate Number _____

Candidate Signature _____

I declare this is my own work.

GCSE

MATHEMATICS

F

Foundation Tier Paper 1 Non-Calculator

8300/1F

Time allowed: 1 hour 30 minutes

At the top of the page, write your surname and other names, your centre number, your candidate number and add your signature.

[Turn over]



For this paper you must have:

- mathematical instruments
- the Formulae Sheet (enclosed).

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 on blank pages.**
- **If you need extra space for your answer(s), use the lined pages at the end of this book. Write the question number against your answer(s).**
- **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 80.
- 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.

DO NOT TURN OVER UNTIL TOLD TO DO SO



Answer ALL questions in the spaces provided.

1 (a) Circle the answer to $150 \div 5$ [1 mark]

3

30

300

3000

1 (b) Circle the answer to $5 - 7$ [1 mark]

-12

-2

2

12

1 (c) Circle the answer to -3×3 [1 mark]

-9

-6

6

9



- 2 P is double r .

Circle the correct formula. [1 mark]

$$P = \frac{r}{2}$$

$$P = r + 2$$

$$P = r - 2$$

$$P = 2r$$

- 3 By rounding each number to the nearest 10, estimate the value of 31×18 [3 marks]

Answer _____

[Turn over]

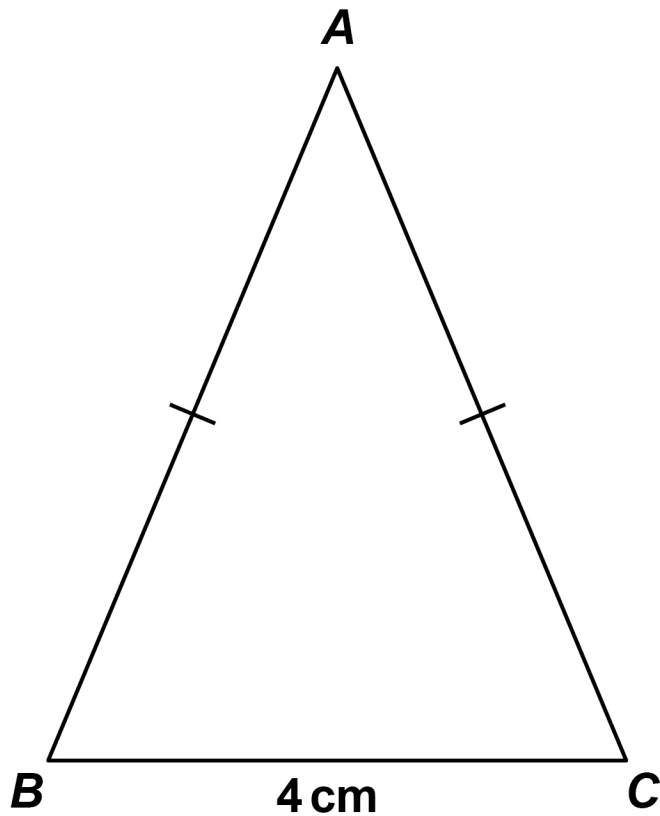
7



4 In this isosceles triangle,

$$AB = AC$$

The diagram is not drawn accurately.



The perimeter of the triangle is 22 cm

Work out the length of AB . [3 marks]

Answer _____ **cm**

[Turn over]



5 After school, Priya will

- go running (R)
- do her homework (H)
- play a video game (V).

Complete the list of the 6 possible orders in which she could do them. [2 marks]

RHV

<hr/>
5



6(a) Which statement is correct?

Tick ONE box.

☐

$$17 + 3 < 29 - 10$$

☐

$$17 + 3 = 29 - 10$$

☐

$$17 + 3 > 29 - 10$$

Show working to support your answer. [2 marks]

[Turn over]



6 (b) Work out $60 \div 2 + 4$ [2 marks]

Answer _____

7

	Cost of 100 grams
Cereal	49p
Pasta	14p

Leah buys 400 grams of cereal and 250 grams of pasta.

Work out the TOTAL cost in £ [4 marks]



Answer £ _____

[Turn over]

8



8(a) For a set of five numbers,
the mode is 8

the median is 12

Work out ONE possible set of five numbers.
[2 marks]

Answer _____



- 8 (b) Here are the heights, in centimetres, of some children.**

98 103 91 85 159 102 91

Which height is an outlier? [1 mark]

Answer _____ **cm**

[Turn over]



9 Shona has 14 dresses.

50% of these dresses are red.

She gives 5 of her red dresses to a charity shop.

She buys 1 new red dress.

What percentage of the dresses she has now are red? [4 marks]

Answer _____ **%**



7

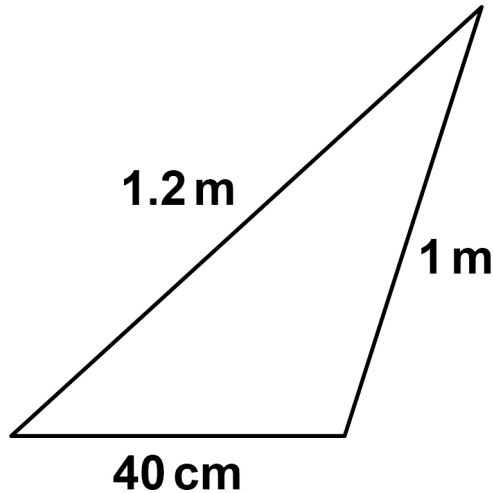
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[Turn over]



10(a) Here is a triangle.

The diagram is not drawn accurately.



Work out $\frac{\text{length of shortest side}}{\text{length of longest side}}$

Give your answer as a fraction in its simplest form. [2 marks]

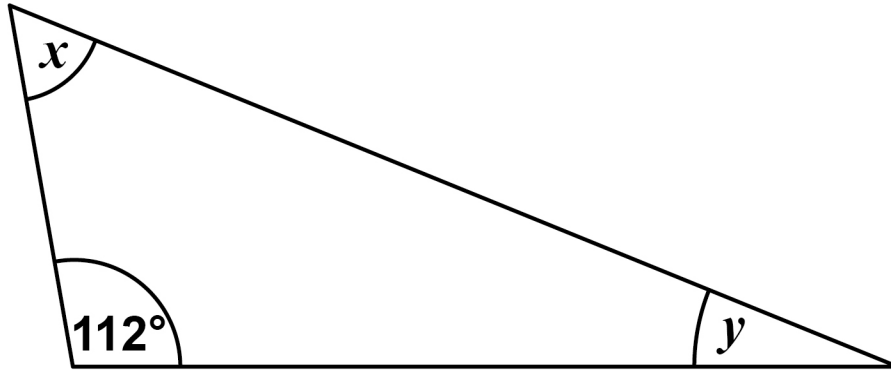
Answer _____

[Turn over]



10(b) Here is a different triangle.

The diagram is not drawn accurately.



$$x = 3y$$

Work out the size of angle y . [3 marks]

$y =$ _____ °



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[Turn over]



- 11 Companies A and B sell insurance for mobile phones.

The table shows the MONTHLY costs for two types of cover, Damage and Loss.

COMPANY	DAMAGE	LOSS
A	£8.65	£12.20
B	£7.25	£14.10

- 11 (a) Work out the difference in monthly cost for the two types of cover with COMPANY A. [2 marks]

Answer £ _____



11(b) Ben wants Damage cover with COMPANY B.

**How much in total will he pay for one YEAR?
[3 marks]**

Answer £ _____

[Turn over]



12 Work out $\frac{11}{18} - \frac{1}{3}$ [2 marks]

Answer _____

7



13(a) The term-to-term rule for a sequence is

multiply by 2

The 3rd term of the sequence is 46

Work out the 1st term.

Give your answer as a decimal. [3 marks]

Answer _____

[Turn over]



13(b) The term-to-term rule for a different sequence is

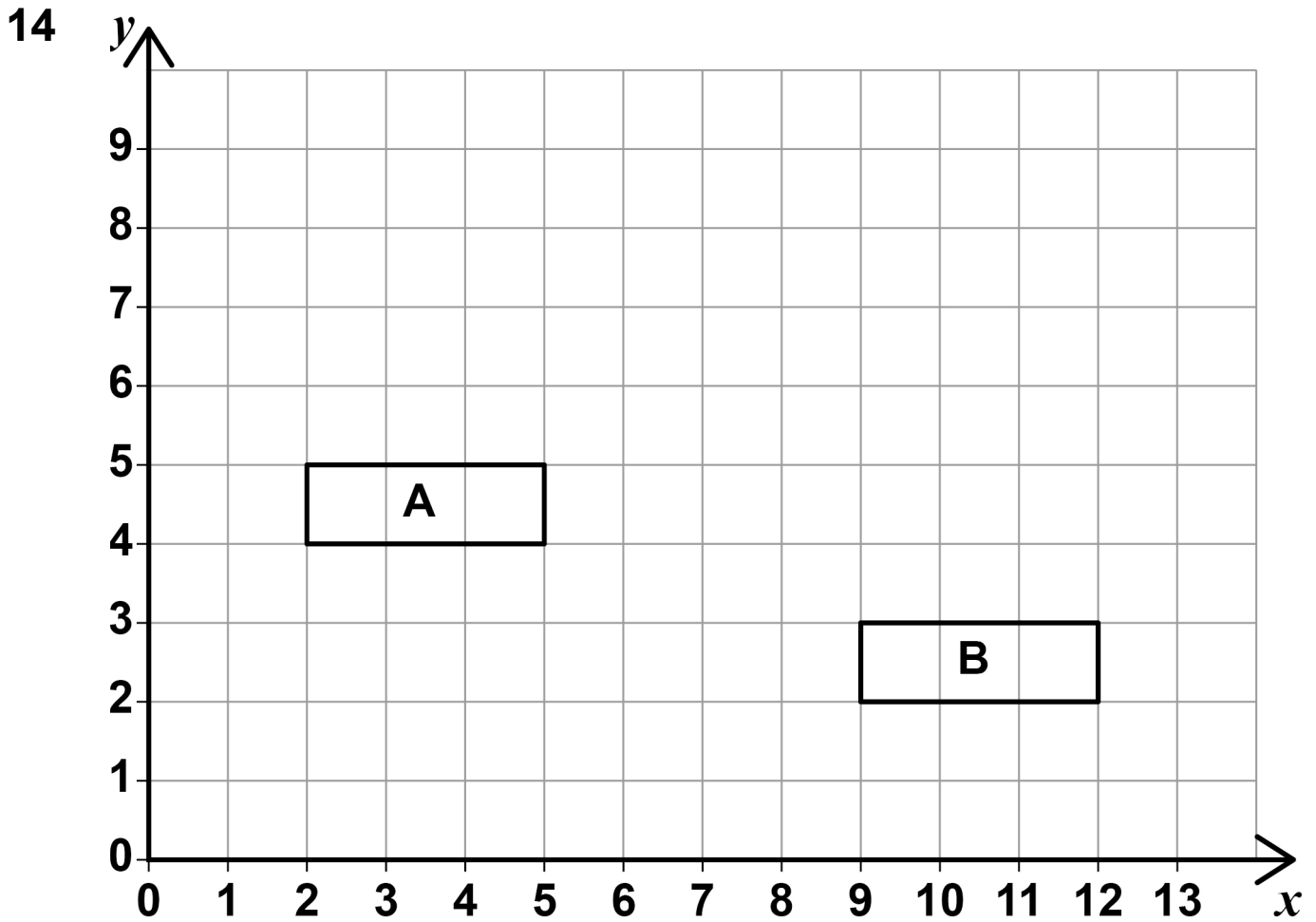
subtract k

The 1st term is 34

The 4th term is 10

Work out the value of k . [3 marks]

$k =$ _____



Work out the vector that translates shape A to shape B. [2 marks]

Answer (\quad)

[Turn over]

8



- 15 In a bag there are only red discs, blue discs and green discs.

There are 10 red discs.

When one disc is picked at random

$$P(\text{red}) = \frac{1}{8}$$

$$P(\text{blue}) = \frac{2}{5}$$

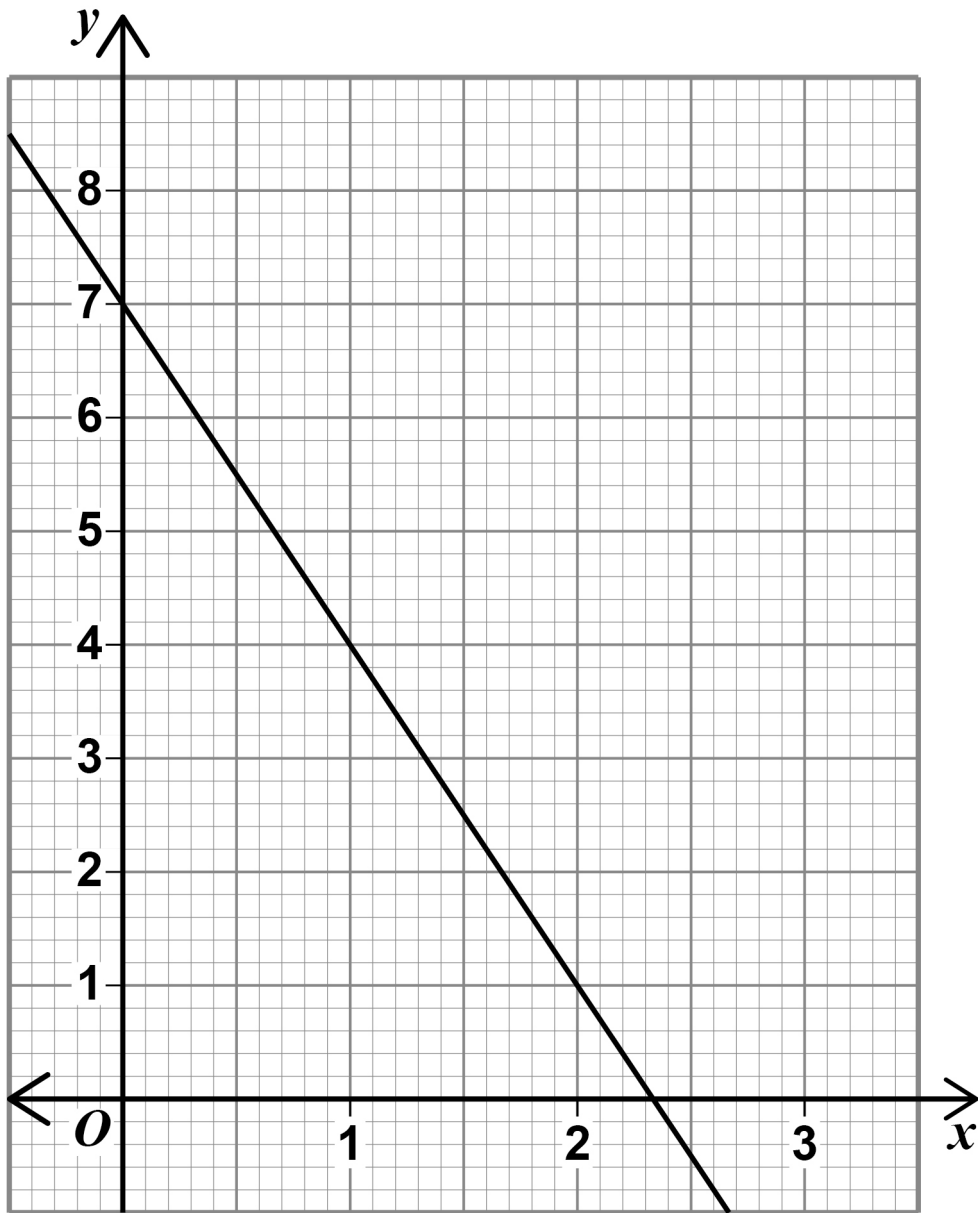
How many GREEN discs are in the bag? [4 marks]

Answer _____

[Turn over]



16 Here is the graph of $y = 7 - 3x$



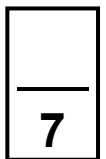
Draw the graph of $y = 2x + 1$ on the grid

and then

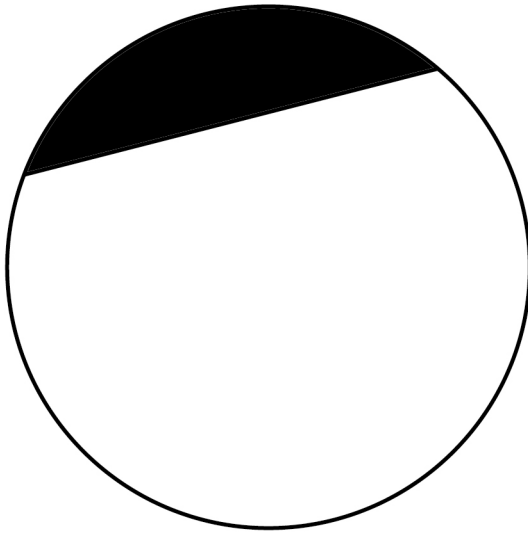
work out an approximate solution to $7 - 3x = 2x + 1$
[3 marks]

Answer _____

[Turn over]



- 17 Part of this circle is shaded.



Circle the name of the shaded part. [1 mark]

arc

sector

chord

segment

18 Work out $80\,000\,000 \div 200$

Give your answer in standard form. [2 marks]

Answer _____

[Turn over]



19(a) Work out $\frac{3^{12}}{3^7}$

Give your answer as a whole number. [2 marks]

Answer



19(b) Simplify $8 \times 2^6 \times 2^4$

Give your answer as a power of 2 [2 marks]

Answer _____

[Turn over]

7



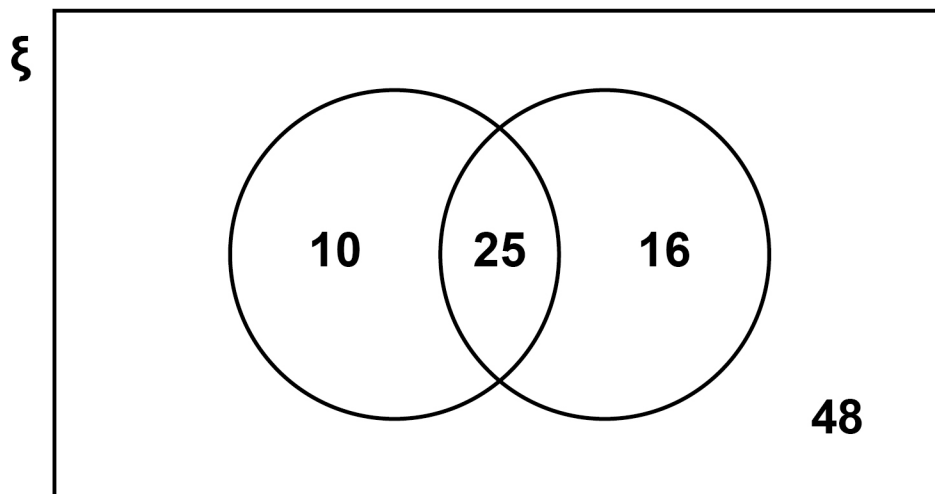
- 20 In a group of 98 students
25 study both Art and French
10 study Art but do not study French
41 study French.

Joel draws this Venn diagram to represent the information.

ξ = the group of 98 students

A = the students who study Art

F = the students who study French



Make TWO criticisms of his diagram. [2 marks]

Criticism 1 _____

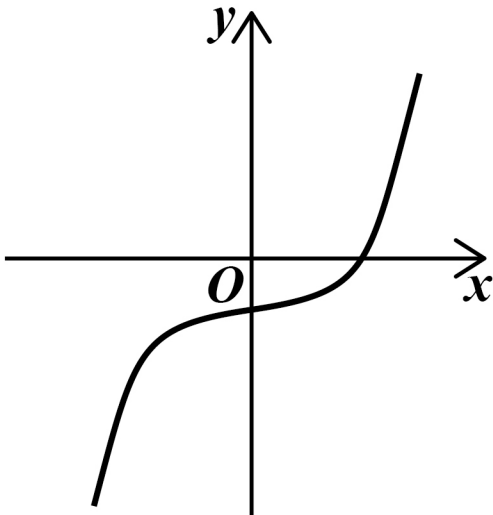
Criticism 2 _____

[Turn over]

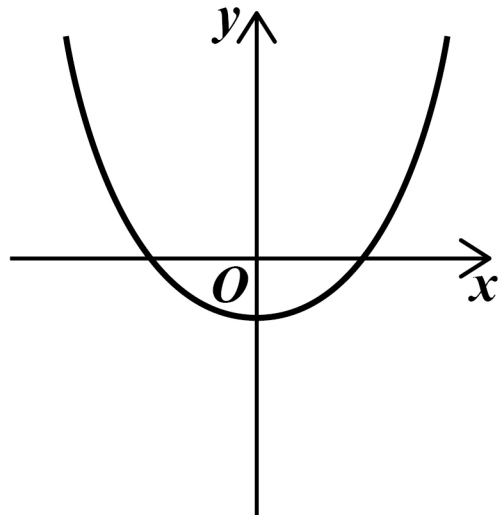


- 21 Circle the letter of the possible sketch graph of $y = x^3 - 4$ [1 mark]

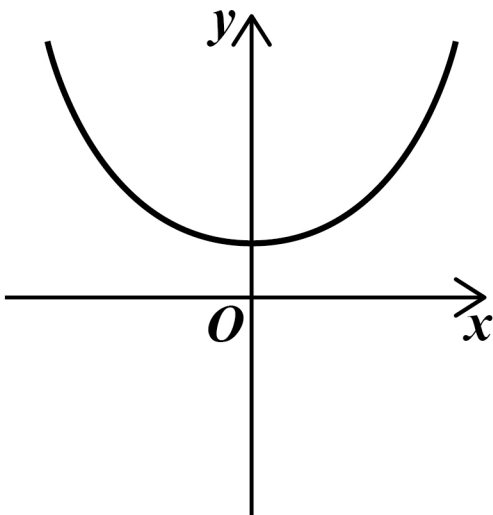
A



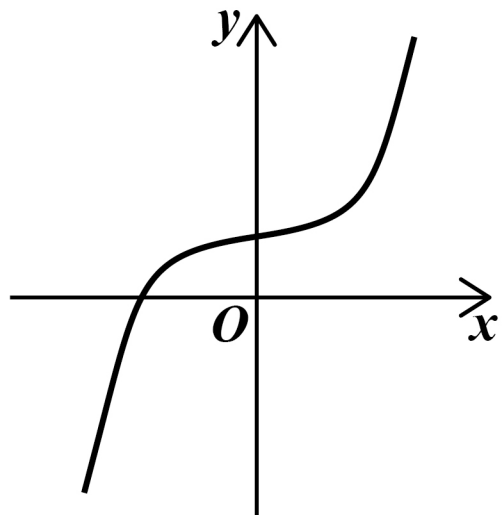
B



C



D



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[Turn over]



22 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.**

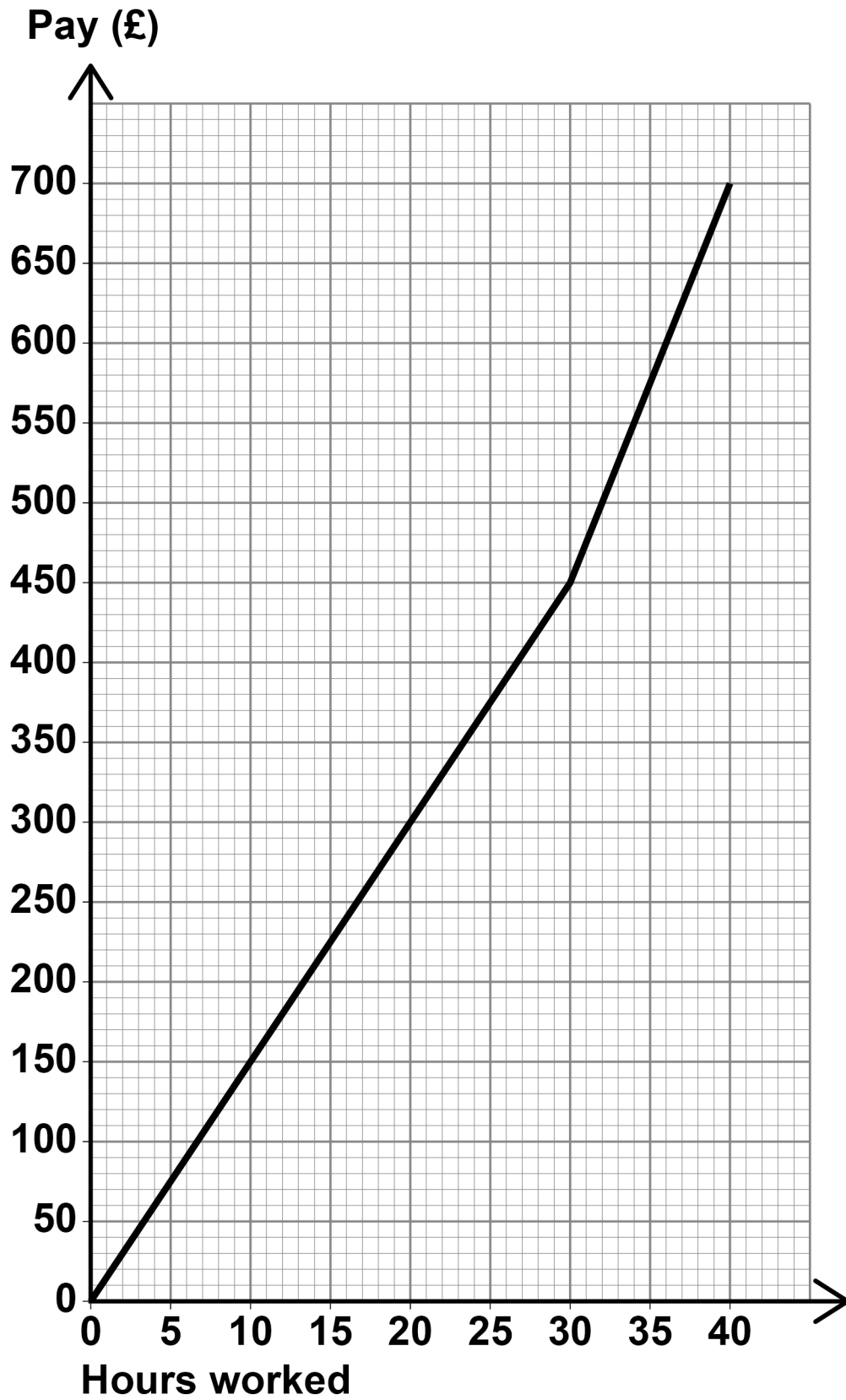
**The graph, on the opposite page, shows his pay
for working up to 40 hours in a week.**

Work out the ratio

basic hourly rate : overtime hourly rate

Give your answer in its simplest form. [3 marks]

Answer _____ :



[Turn over]



- 23(a)** In each box, write a fraction **LESS** than 1 to make a correct calculation. [1 mark]

$$\boxed{\frac{\quad}{\quad}} \times \boxed{\frac{\quad}{\quad}} = \frac{3}{10}$$

- 23(b)** In each box, write a decimal **LESS** than 1 to make a correct calculation. [1 mark]

$$\boxed{\quad} \times \boxed{\quad} = 0.06$$

<hr/>
5

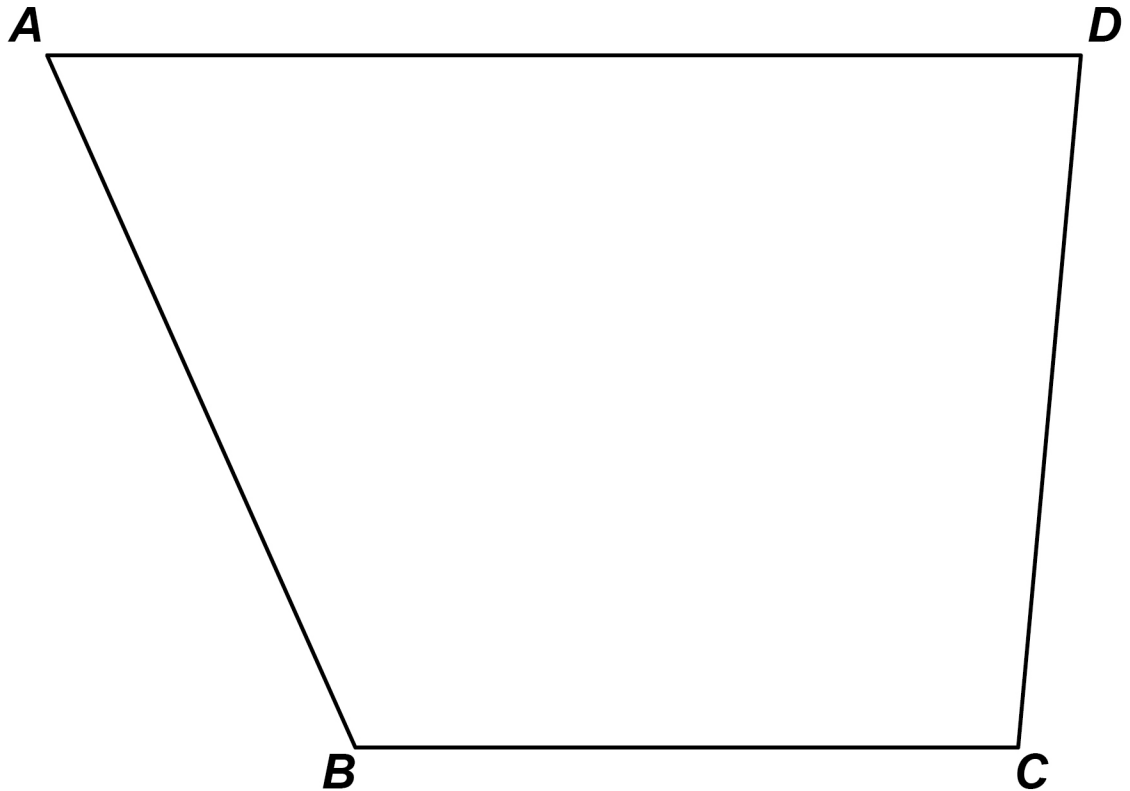
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[Turn over]



24 Use a ruler and compasses in this question.

ABCD represents a garden.



A tree is to be planted in the garden.

The tree will be in the region that is closer to AB than to BC .

Label the region, R , where the tree could be planted.

Show all your construction lines, on the opposite page. [3 marks]

[Turn over]

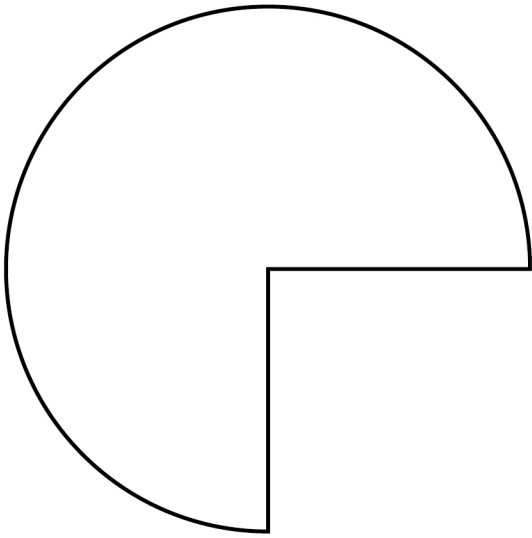


25 Here are two shapes, P and Q.

The diagram is not drawn accurately.

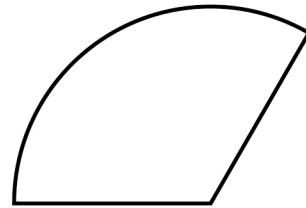
P

$\frac{3}{4}$ of a circle, radius 20 cm



Q

$\frac{1}{3}$ of a circle, radius 15 cm



How many times bigger is the area of P than the area of Q?

You **MUST** show your working. [4 marks]



Answer _____

[Turn over]

7



26 Solve $\frac{2w}{15} = \frac{4}{5}$ [2 marks]

$w =$ _____

27 A solid has volume 300 cm^3 and density 2 g/cm^3

Circle the mass of the solid. [1 mark]

150 g

298 g

302 g

600 g



28 $x : y$ is $9 : 5$

Circle the value of $\frac{2x}{y}$ [1 mark]

$$\frac{5}{18}$$

$$\frac{18}{5}$$

$$\frac{9}{10}$$

$$\frac{10}{9}$$

END OF QUESTIONS

4



Additional page, if required.

Write the question numbers in the left-hand margin.

[illegible]

Additional page, if required.

Write the question numbers in the left-hand margin.

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For Examiner's Use	
Pages	Mark
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6–8	
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TOTAL	

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