Write your name here

Surname	Other names

Pearson Edexcel GCSE

Centre Number | | | | | |

Candidate Number | | | | |

Methods in Mathematics

Unit 2: Methods 2

For Approved Pilot Centres ONLY

Foundation Tier

Tuesday 20 June 2017 – Afternoon
Time: 1 hour 45 minutes

Paper Reference
5MM2F/01

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided – *there may be more space than you need.*
- **Calculators may be used.**
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

Information

- The total mark for this paper is 100
- The marks for **each** question are shown in brackets – *use this as a guide as to how much time to spend on each question.*
- Questions labelled with an **asterisk** (*) are ones where the quality of your written communication will be assessed.

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ▶

P53505A

©2017 Pearson Education Ltd.

6/6/7/5/

P 5 3 5 0 5 A 0 1 2 4

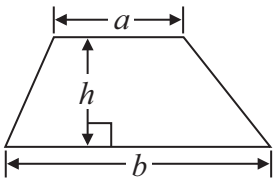
Pearson

GCSE Mathematics 2MM01

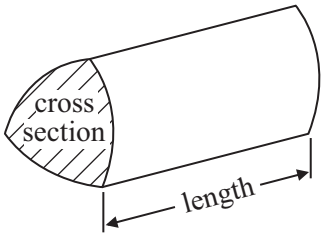
Formulae: Foundation Tier

You must not write on this formulae page.
Anything you write on this formulae page will gain NO credit.

Area of trapezium = $\frac{1}{2}(a + b)h$



Volume of prism = area of cross section × length



DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

1 (a) Work out 14.8 + 309

.....

(1)

(b) Work out the difference between 42.3 and 65

.....

(1)

(c) Work out 6.4 × 100 + 23

.....

(1)

(d) Work out $\sqrt[3]{3.375}$

.....

(1)

(e) Work out $(-1.2)^3$

.....

(1)

(f) 4.2 × 2.9 is greater than 5.7 × 2.1

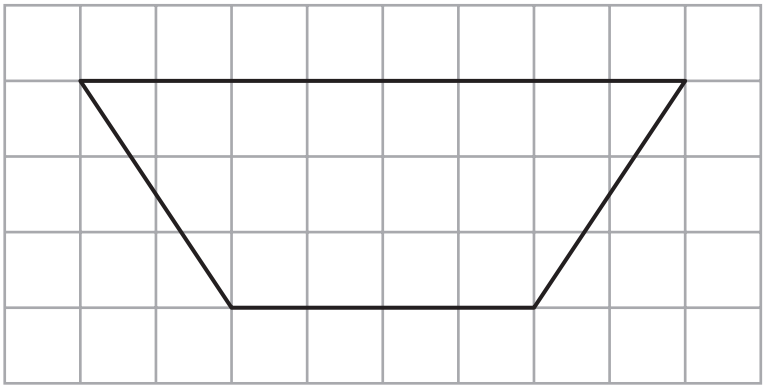
Show that this is true.

(2)

(Total for Question 1 is 7 marks)

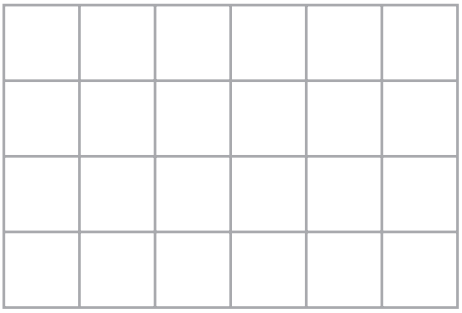
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

2 Here is a shape on a grid.



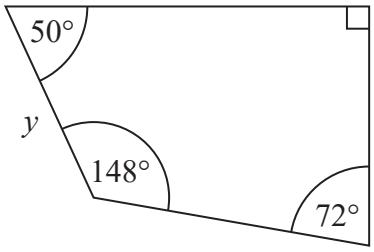
This shape can be made from **six** congruent triangles.

(a) On the grid below, draw **one** of these congruent triangles.



(1)

Here are two congruent quadrilaterals.



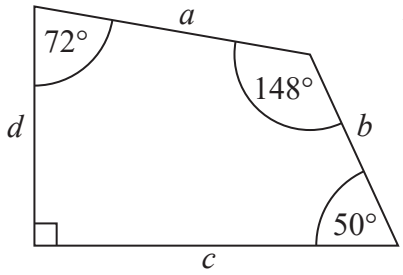


Diagram **NOT** accurately drawn

The length of the side marked y is equal to the length of one of the sides marked a or b or c or d.

(b) Which side?

.....

(1)

(Total for Question 2 is 2 marks)

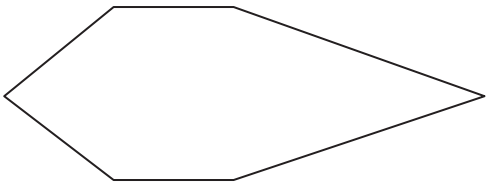
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

3 (a) How many sides does a heptagon have?

.....

(1)

Here is a polygon with 6 sides.



(b) On the polygon, mark with arrows (>>) a pair of parallel lines.

(1)

(c) Write down the special name of this polygon.

.....

(1)

This polygon is **not** a regular polygon.

(d) Explain why.

.....

(1)

(Total for Question 3 is 4 marks)

4 (a) Work out the difference between –5 °C and 7 °C.

..... °C

(1)

At 3 am the temperature was –4 °C.
By midday the temperature had gone up by 11°C.
From midday to midnight the temperature went down by 9 °C.

(b) Work out the temperature at midnight.

..... °C

(2)

(Total for Question 4 is 3 marks)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

5 Here is a solid prism made from centimetre cubes.

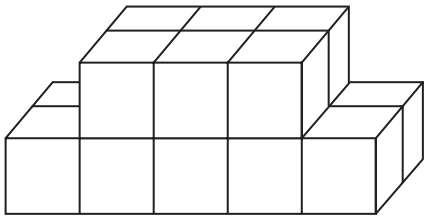


Diagram **NOT** accurately drawn

(a) Find the volume of the solid prism.

..... cm^3

(1)

A solid cuboid is also made from centimetre cubes.

The diagram shows the bottom layer of cubes in the cuboid.

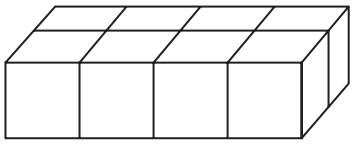


Diagram **NOT** accurately drawn

The volume of the cuboid is 96 cm^3.

(b) Find the height of the cuboid.

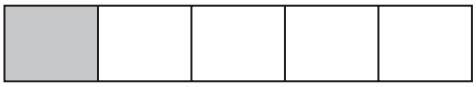
..... cm

(2)

(Total for Question 5 is 3 marks)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

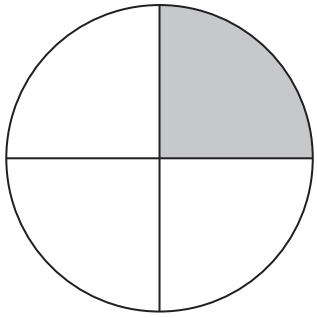
6 Here is a rectangle.



(a) What fraction of this rectangle is shaded?

.....

(1)



(b) What percentage of this circle is shaded?

.....%

(1)

(c) Write 0.8 as a fraction.
Give your answer in its simplest form.

.....

(2)

(d) Write 0.36 as a percentage.

..... %

(1)

(e) Write 37 out of 50 as a percentage.

.....%

(2)

(f) Write 45 out of 500 as a decimal.

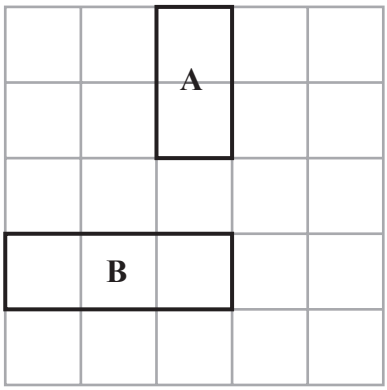
.....

(1)

(Total for Question 6 is 8 marks)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

7 Tile **A** and tile **B** are shown on the grid.



Dan has 8 more tiles.
He has

4 more of tile **A**
and 4 more of tile **B**.

Show how Dan can use these 8 tiles to cover the rest of the grid completely.

(Total for Question 7 is 2 marks)

8 (a) Work out $\frac{1}{8}$ of 240

.....

(1)

$\frac{2}{5}$ of a number is 32

(b) Find the number.

.....

(2)

(c) Work out 20% of £600

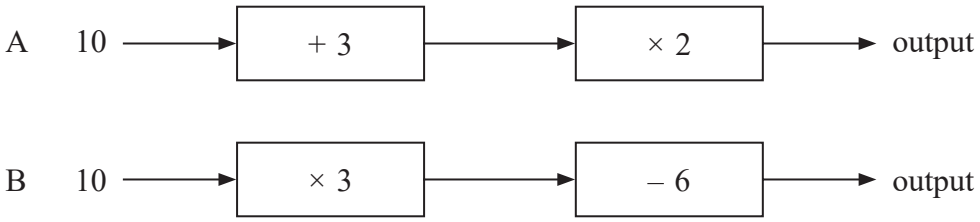
£.....

(2)

(Total for Question 8 is 5 marks)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

9 *(a) Here are two number machines, A and B.

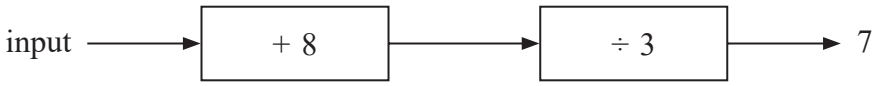


The input for each number machine is 10

Which number machine gives the greater output?
You must show all your working.

(3)

Here is a different number machine.

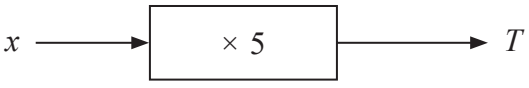


(b) Work out the input for this number machine.

.....

(2)

(c) The input for this number machine is x.
The output for this number machine is T.



Write down a formula for T in terms of x.

.....

(2)

(Total for Question 9 is 7 marks)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

10 (a) Write these numbers in order of size.
Start with the smallest number.

0.6 0.36 0.06 0.3 0.63

.....

(1)

(b) Write these fractions in order of size.
Start with the smallest fraction.

$\frac{1}{6}$ $\frac{3}{8}$ $\frac{11}{24}$ $\frac{1}{3}$ $\frac{5}{12}$

.....

(2)

(c) Write these numbers in order of size.
Start with the smallest number.

$\frac{1}{2}$ 40% 0.52 $\frac{4}{9}$ 0.6

.....

(2)

(Total for Question 10 is 5 marks)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

11 $e = 3f$
$f = 12$

(a) Work out the value of e.

$e =$ .....

(1)

$a = 2c + 5d$
$c = 4$
$d = 6$

(b) Work out the value of a.

$a =$ .....

(2)

$w = 3x + 4y$
$x = 7$
$y = -1$

(c) Work out the value of w.

$w =$ .....

(2)

(Total for Question 11 is 5 marks)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

12 Three different whole numbers have a sum greater than 20 and less than 24
Each whole number is less than 10

(a) What could the three numbers be?

..... , ... , ...

(2)

(b) Find the number that is halfway between –5 and 6

.....

(2)

(Total for Question 12 is 4 marks)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

13 Here is a rule for working out the area of a kite.

Multiply the lengths of the diagonals together and then divide by 2

A kite has diagonals of length 8 cm and 11 cm.

(a) Use the rule to work out the area of the kite.

..... cm^2

(2)

A different kite has an area of 40 cm^2.
One of its diagonals has a length of 5 cm.

(b) Work out the length of the other diagonal.

..... cm

(3)

(Total for Question 13 is 5 marks)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

14 Debbie thinks of a number.
She divides the number by 5

Her answer is 12

(a) What number did Debbie think of?

.....

(1)

Lewis thinks of a number.

He multiplies the number by 3
He then subtracts 18

His answer is 51

(b) What number did Lewis think of?

.....

(2)

(Total for Question 14 is 3 marks)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

15 The diagram shows two cuboids, **A** and **B**.

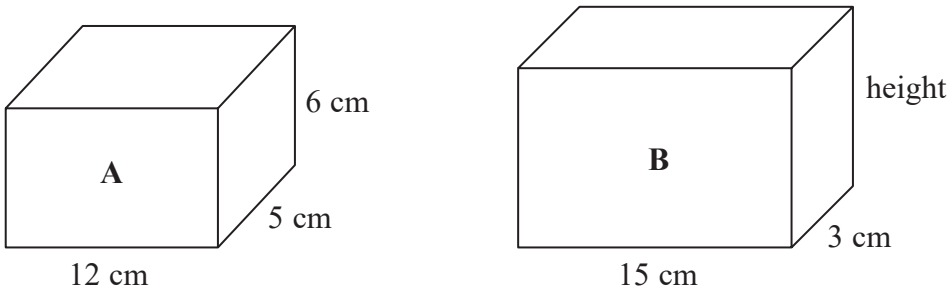


Diagram **NOT** accurately drawn

The two cuboids have the same volume.

Work out the height of cuboid **B**.

..... cm

(Total for Question 15 is 3 marks)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

***16**

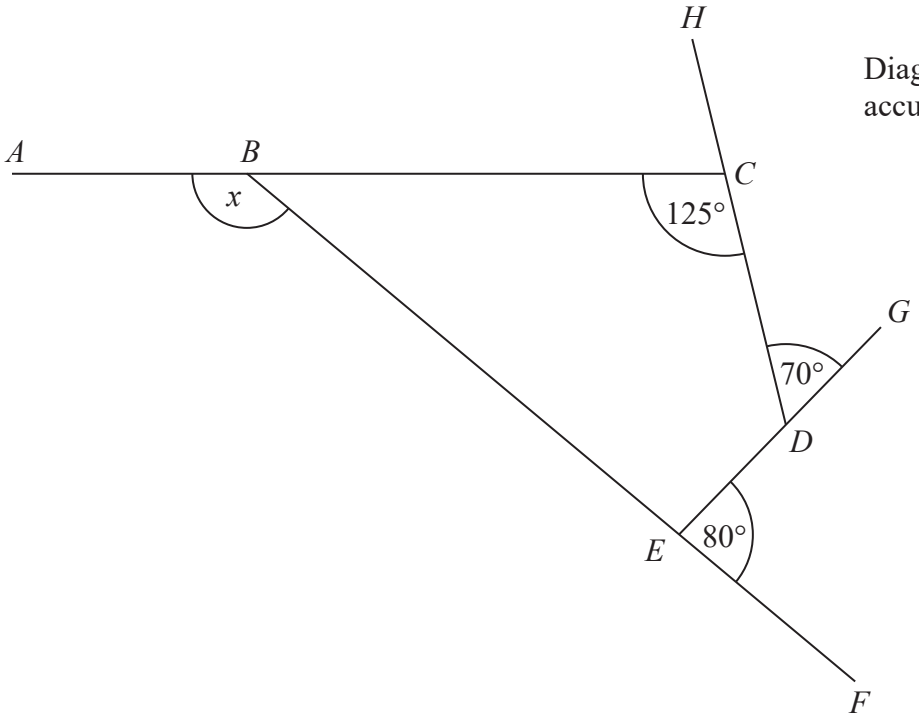


Diagram **NOT** accurately drawn

BCDE is a quadrilateral.
ABC, *EDG*, *BEF*, and *DCH* are straight lines.

Work out the size of the angle marked *x*.
Give reasons for your answer.

(Total for Question 16 is 5 marks)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

***17** There are 120 counters in a bag.

40% of the counters are red.

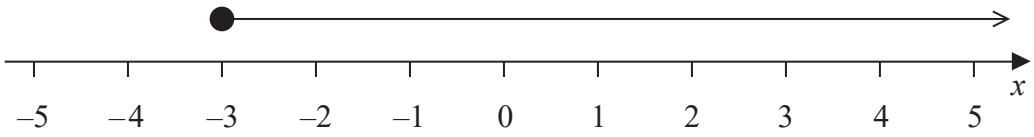
$\frac{3}{8}$ of the counters are yellow.

The rest of the counters are green.

Show that less than a quarter of the counters are green.

(Total for Question 17 is 4 marks)

18 Here is a number line.

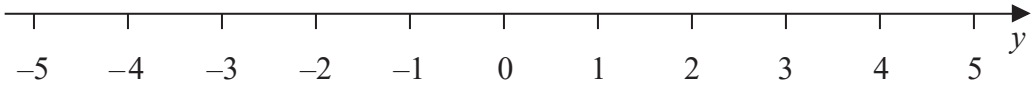


(a) Write down the inequality shown on the number line.

.....

(1)

Here is a number line.



(b) On this number line, show the inequality $-2 < y \leqslant 4$

(2)

n is an integer and $-1 \leqslant n < 5$

(c) Write down all the possible values of n.

.....

(2)

(Total for Question 18 is 5 marks)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

19 David has x counters.

Lisa has 5 more counters than David.
Samia has 4 times as many counters as David.

The total number of counters is T.

(a) Write a formula for T in terms of x.
Give your answer in its simplest form.

.....

(3)

(b) Make e the subject of the formula $p = q + 3e$

.....

(2)

(Total for Question 19 is 5 marks)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

***20**

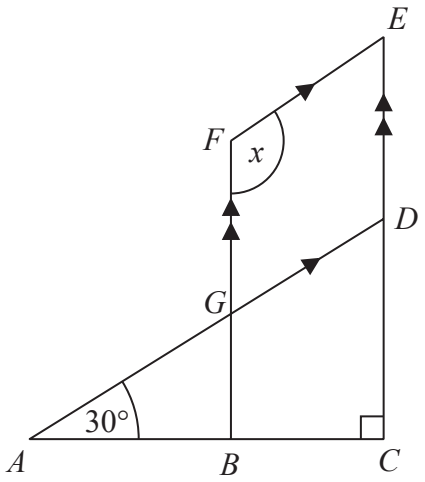


Diagram **NOT** accurately drawn

ABC is a straight line.
BGF is parallel to *CDE*.
AGD is parallel to *FE*.

Angle *CAD* = 30°
Angle *ACD* = 90°

Work out the size of the angle marked *x*.
Give reasons for your answer.

(Total for Question 20 is 4 marks)

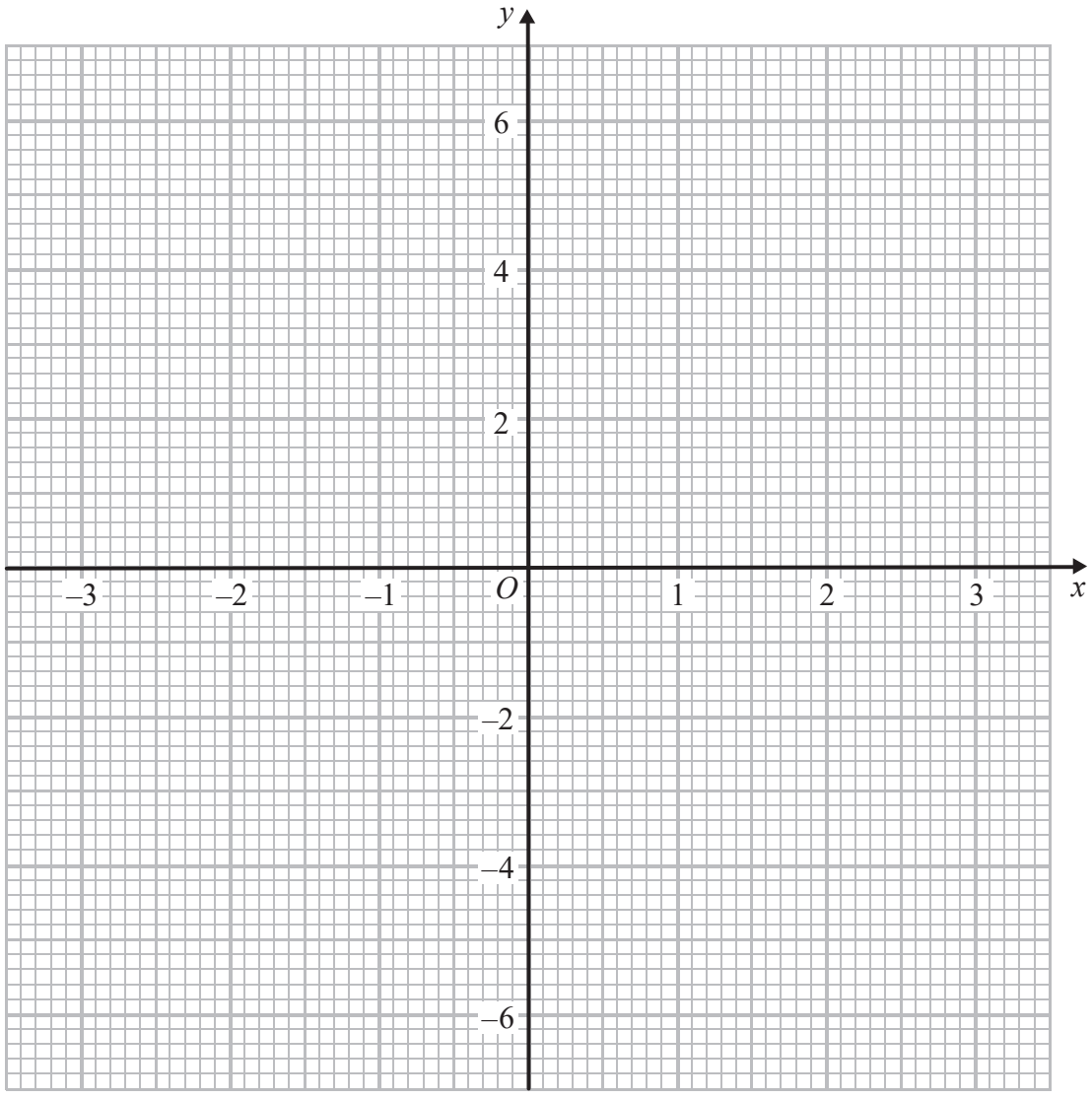
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

21 (a) Complete the table of values for $y = x^2 - 5$

x	–3	–2	–1	0	1	2	3
y	4		–4			–1	

(2)

(b) On the grid, draw the graph of $y = x^2 - 5$ for values of x from –3 to 3



(2)

(c) Use the graph to find the values of x for which $x^2 - 5 = 0$

.....

(2)

(Total for Question 21 is 6 marks)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

22

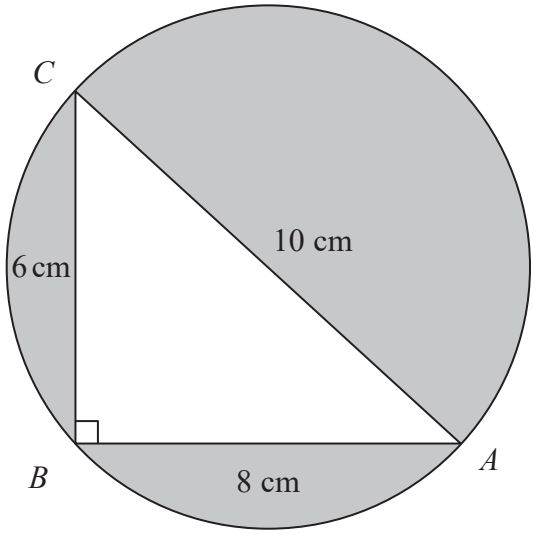


Diagram **NOT** accurately drawn

A, *B* and *C* are points on a circle with *AC* as a diameter.
ABC is a right-angled triangle.

Work out the total area of the regions shaded in the diagram.
Give your answer correct to 1 decimal place.

..... cm^2

(Total for Question 22 is 5 marks)

TOTAL FOR PAPER IS 100 MARKS

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

BLANK PAGE

BLANK PAGE

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA