Write your name here

Surname	Other names

Edexcel GCSE

Centre Number	Candidate Number

Methods in Mathematics

Unit 2: Methods 2

For Approved Pilot Centres ONLY

Foundation Tier

Thursday 20 June 2013 – Morning
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 ▶

P41234A

6/6/8/5/

P 4 1 2 3 4 A 0 1 2 4

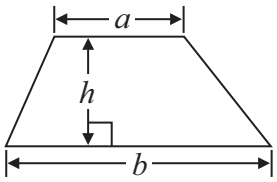
PEARSON

GCSE Mathematics 2MM01

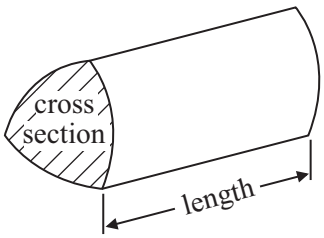
Formulae: Foundation Tier

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



Answer ALL questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

1 Write in the numbers missing from the empty boxes.

(a) $5.58 + 3.1 =$ ☐

(1)

(b) $27.6 -$ ☐ $= 19.32$

(1)

(c) $0.75 \times 10 =$ ☐

(1)

(d) ☐ $\times$ 1000 = 54 000

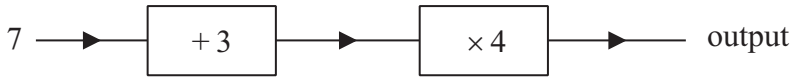
(1)

(e) $436 \div$ ☐ $= 4.36$

(1)

(Total for Question 1 is 5 marks)

2 (a) Work out the output for this number machine.



.....

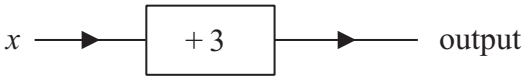
(2)

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

.....

(2)

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

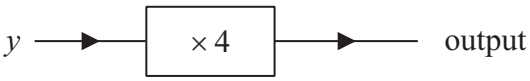


Find an expression, in terms of x, for the output.

.....

(1)

(d) The input for this number machine is y.



Find an expression, in terms of y, for the output.

.....

(1)

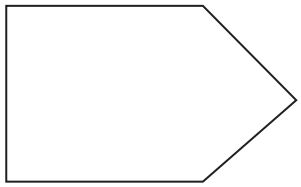
(Total for Question 2 is 6 marks)

3 (a) How many sides does an octagon have?

.....

(1)

Here is a polygon with 5 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 5.1^2

.....

(1)

(b) Work out $\sqrt{34.81}$

.....

(1)

(c) Work out 0.4^3

.....

(1)

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

.....

(1)

(Total for Question 4 is 4 marks)

5 (a) Work out the difference between −6 °C and 4 °C.

..... °C

(1)

At 3 am the temperature is −3 °C.
By midday the temperature has gone up by 8 °C.
From midday to midnight the temperature goes down by 12 °C.

(b) Work out the temperature at midnight.

..... °C

(2)

(Total for Question 5 is 3 marks)

6 12 bags of cement cost £43.80

Work out the cost of 6 bags of cement.

£.....

(Total for Question 6 is 2 marks)

7 Here is a solid prism made from centimetre cubes.

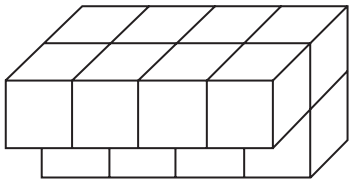


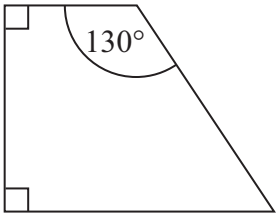
Diagram **NOT** accurately drawn

Find the volume of the prism.

..... cm^3

(Total for Question 7 is 1 mark)

8 Here are two congruent shapes.



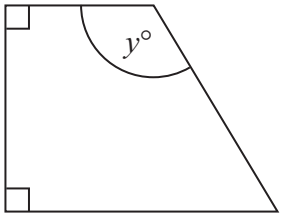


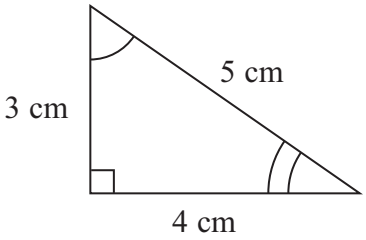
Diagram **NOT** accurately drawn

(a) Write down the value of y.

$y =$.....

(1)

Here are two mathematically similar right-angled triangles.



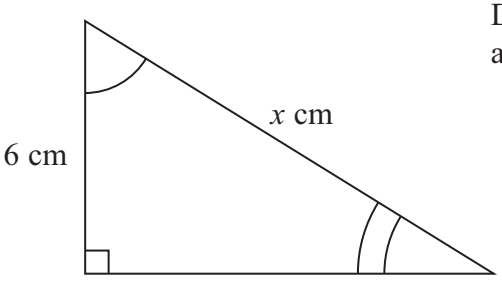


Diagram **NOT** accurately drawn

(b) The value of x is 10

Explain why.

.....

.....

(1)

(Total for Question 8 is 2 marks)

9 (a) Write 0.5 as a fraction.

.....

(1)

(b) Write $\frac{17}{100}$ as a decimal.

.....

(1)

(c) Write 40 out of 50 as a fraction.
Give your fraction in its simplest form.

.....

(2)

(d) Work out $\frac{3}{4}$ of 24

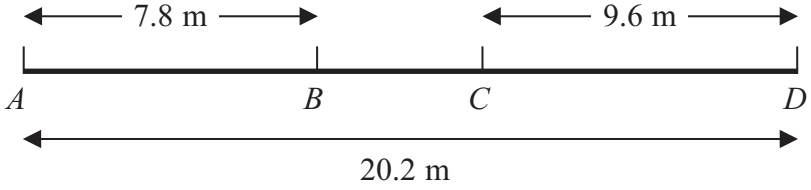
.....

(2)

(Total for Question 9 is 6 marks)

10 A, B, C and D are points on a straight line.

Diagram **NOT** accurately drawn



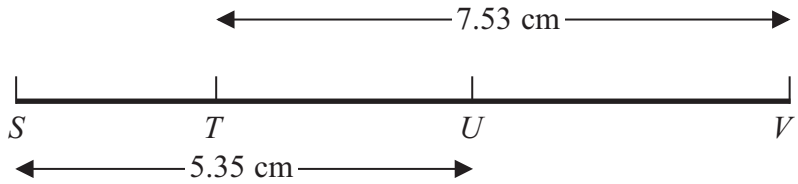
$AB = 7.8$ m
$CD = 9.6$ m
$AD = 20.2$ m

(a) Work out the length of BC.

..... m
(2)

S, T, U and V are points on another straight line.

Diagram **NOT** accurately drawn



$TU = 3.8$ cm

(b) Work out the length of SV.

..... cm
(2)

(Total for Question 10 is 4 marks)

11 You can use this formula to work out the surface area of a cube.

surface area = area of one face × 6

The area of one face of a cube is 8 cm^2.

(a) Work out the surface area of this cube.

..... cm^2

(2)

A different cube has a surface area of 144 cm^2.

(b) Work out the area of one face of this cube.

..... cm^2

(2)

(Total for Question 11 is 4 marks)

12 $P = 2m$

$m = 3$

(a) Work out the value of P.

.....

(1)

$T = 3x + 2y$

$x = 5$
$y = 4$

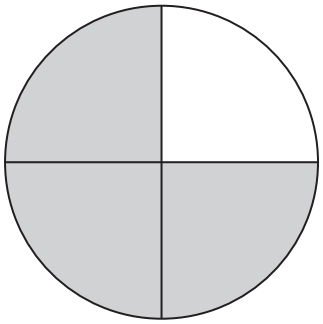
(b) Work out the value of T.

.....

(2)

(Total for Question 12 is 3 marks)

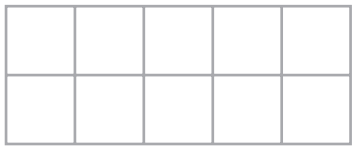
13 (a) What percentage of this shape is shaded?



..... %

(1)

(b) Shade 60% of this shape.



(1)

(c) Write 74 out of 200 as a percentage.

..... %

(2)

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

$\frac{2}{7}$ 24% 0.35 $\frac{1}{4}$ 0.2

.....

(2)

(Total for Question 13 is 6 marks)

14 (a) Write $0.\dot{3}$ as a fraction.

.....

(1)

(b) Two of these fractions are **not** recurring decimals.

$$\frac{1}{4} \qquad \frac{2}{9} \qquad \frac{1}{3} \qquad \frac{3}{8} \qquad \frac{5}{7}$$

Which two fractions?
You must show how you got your answer.

..... and .....

(2)

(Total for Question 14 is 3 marks)

15 Calculate the value of $\dfrac{2.59}{3.6 - 1.85}$

.....

(Total for Question 15 is 2 marks)

***16** Here are two fractions.

$$\frac{3}{5} \quad \text{and} \quad \frac{5}{8}$$

Which is the larger fraction?
You must show clearly how you got your answer.

(Total for Question 16 is 3 marks)

17 There are 20 counters in a bag.
14 of these counters are red.
6 of these counters are blue.

(a) Write down the ratio of the number of red counters to the number of blue counters.
Give your ratio in its simplest form.

.....

(2)

5 counters are taken from the bag.
The ratio of the number of red counters to the number of blue counters is now 4 : 1

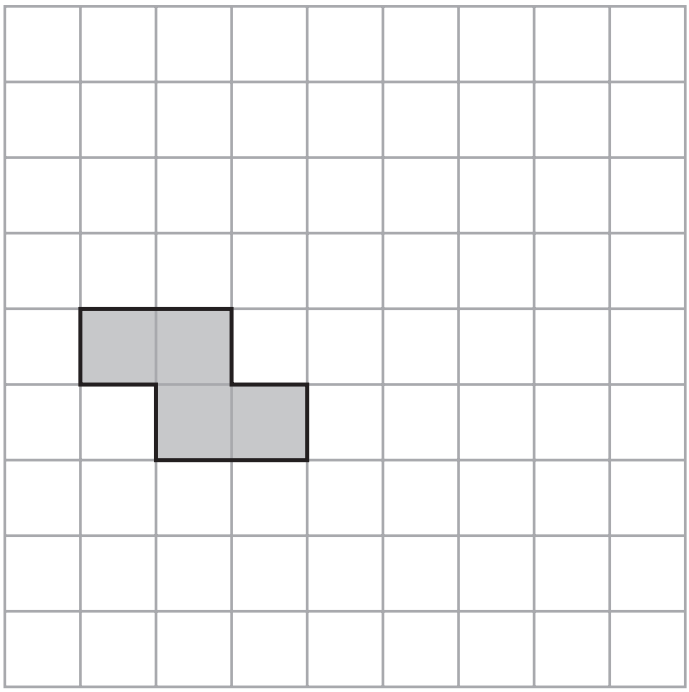
(b) How many red counters were taken from the bag?

.....

(3)

(Total for Question 17 is 5 marks)

18 On the grid, show how the shape tessellates.
You must draw at least 6 shapes.



(Total for Question 18 is 2 marks)

***19**

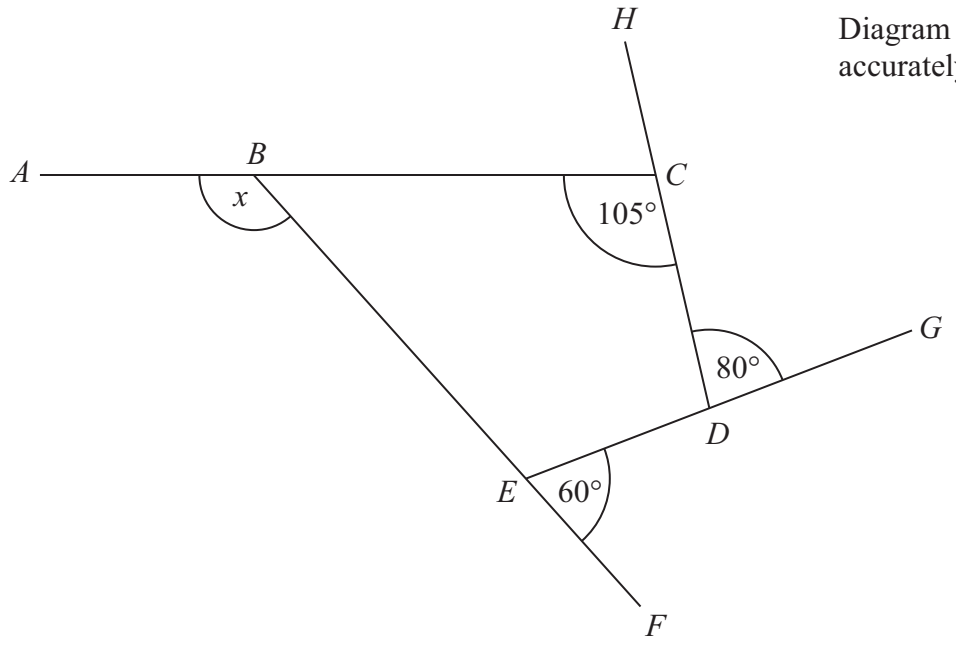


Diagram **NOT** accurately drawn

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 19 is 5 marks)

20 (a) Work out 20% of 450

.....

(2)

(b) Decrease £320 by one eighth.

£ .....

(3)

(Total for Question 20 is 5 marks)

21 Here is a solid cuboid.

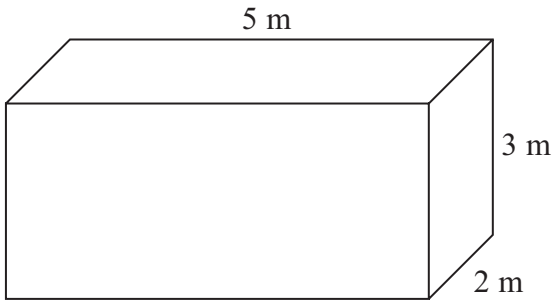


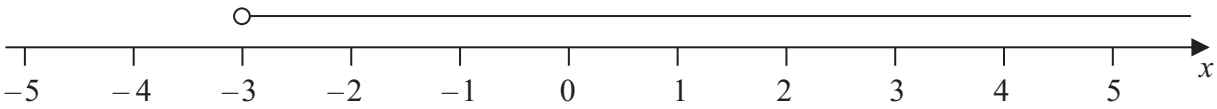
Diagram **NOT** accurately drawn

Work out the total surface area of this cuboid.

..... m^2

(Total for Question 21 is 3 marks)

22 Here is a number line.

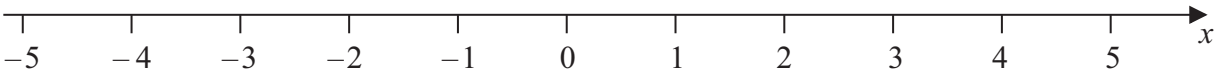


(a) Write down the inequality shown on the number line.

.....

(1)

Here is a number line.



(b) On this number line, show the inequality $-1 \leqslant x < 3$

(2)

(Total for Question 22 is 3 marks)

***23**

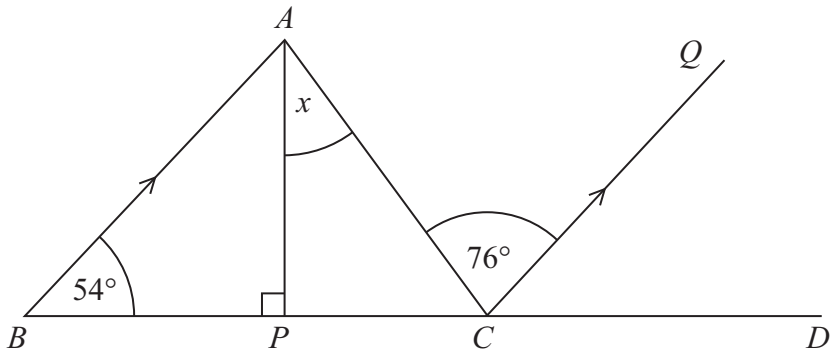


Diagram **NOT** accurately drawn

BPCD is a straight line.
BA is parallel to *CQ*.
AP is perpendicular to *BC*.
Angle *ABC* = 54°
Angle *ACQ* = 76°

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

(Total for Question 23 is 4 marks)

24 Here is a cylinder.

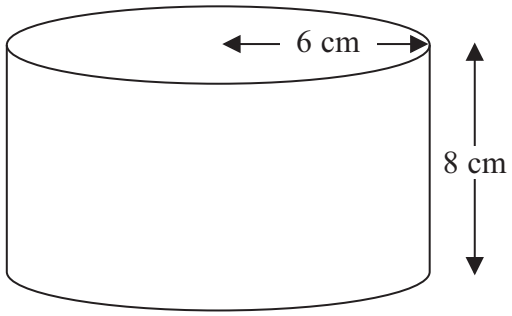


Diagram **NOT** accurately drawn

The formula to find the volume, V, of a cylinder is $V = \pi r^2 h$

The radius, r, of the cylinder is 6 cm.
The height, h, of the cylinder is 8 cm.

Work out the volume of the cylinder.
Give your answer correct to 3 significant figures.

..... cm^3

(Total for Question 24 is 2 marks)

25 The value of x is greater than 12

(a) Write down an inequality for x.

.....

(1)

The value of y is less than or equal to 20

(b) Write down an inequality for y.

.....

(1)

(Total for Question 25 is 2 marks)

26 Here is a right-angled triangle.

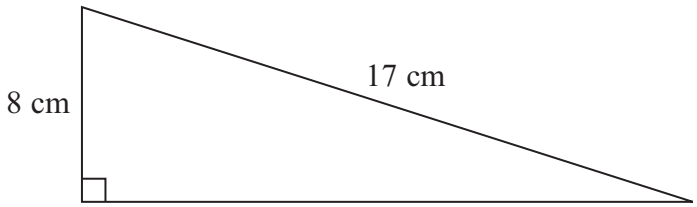


Diagram **NOT** accurately drawn

Work out the area of the triangle.

.....cm^2

(Total for Question 26 is 4 marks)

27 Here is a rectangle.

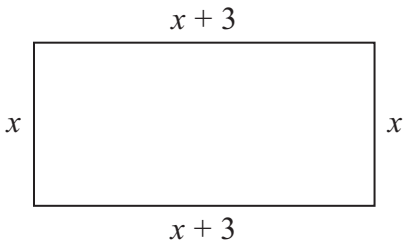


Diagram **NOT** accurately drawn

All measurements are in centimetres.

D cm is the total length of the four sides.

(a) Show that $D = 4x + 6$

(2)

(b) Make x the subject of the formula $D = 4x + 6$

.....

(2)

(Total for Question 27 is 4 marks)

Turn over for Question 28

28

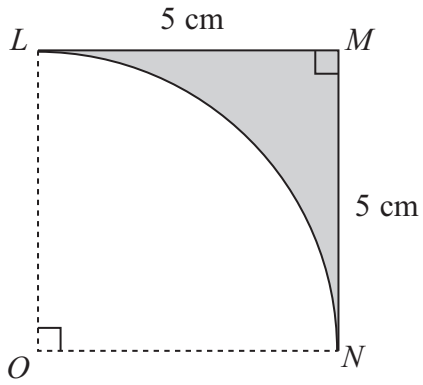


Diagram **NOT** accurately drawn

The arc LN is a quarter of a circle of radius 5 cm, centre O.

Find the perimeter of the shaded shape.
Give your answer correct to 2 decimal places.

.....cm

(Total for Question 28 is 3 marks)

TOTAL FOR PAPER IS 100 MARKS

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