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

Tuesday 21 June 2011 – 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
  – *you should take particular care on these questions with your spelling, punctuation and grammar, as well as the clarity of expression.*

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 ▶

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6/6/6/6/6

P 3 8 9 5 7 B 0 1 2 0

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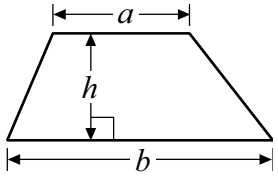
GCSE Mathematics 2MM01

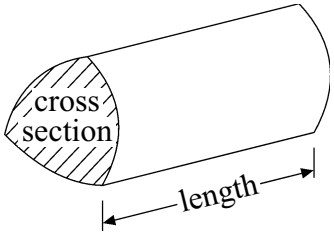
Formulae: Foundation Tier

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 Work out

(a) 45.06 – 17.9

.....

(1)

(b) 7.8^2

.....

(1)

(c) –17 × –4

.....

(1)

(d) 3.4 + 5 × 2.7

.....

(1)

(e) $(9.7 + 2.6)^2$

.....

(1)

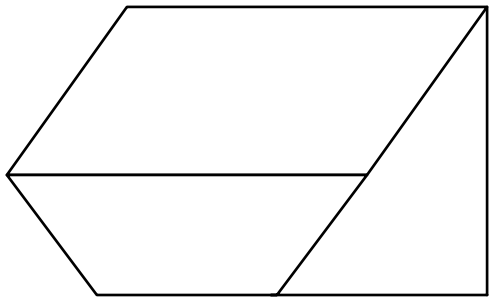
(Total for Question 1 is 5 marks)

2 Write 20 out of 60 as a fraction.
Give your fraction in its simplest form.

.....

(Total for Question 2 is 2 marks)

3 The diagram shows a parallelogram, a trapezium and a triangle.



Mark, with arrows (>>), a pair of parallel lines.

(Total for Question 3 is 1 mark)

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

0.72 0.27 0.2 0.07 0.7

.....

(1)

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

$\frac{1}{2}$ $\frac{5}{6}$ $\frac{1}{3}$ $\frac{7}{12}$ $\frac{3}{4}$

.....

(2)

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

$\frac{1}{2}$ 30% 0.65 $\frac{3}{5}$ 0.4

.....

(2)

(Total for Question 4 is 5 marks)

*5

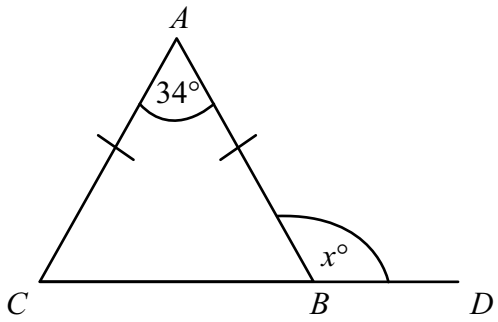


Diagram **NOT** accurately drawn

CBD is a straight line.
AB = *AC*.
Angle *A* = 34°.

Work out the value of *x*.
Give reasons for your answer.

(Total for Question 5 is 4 marks)

6 (a) Work out the difference between –13°C and –24°C.

..... °C

(1)

(b) Work out the difference between –18°C and 15°C.

..... °C

(1)

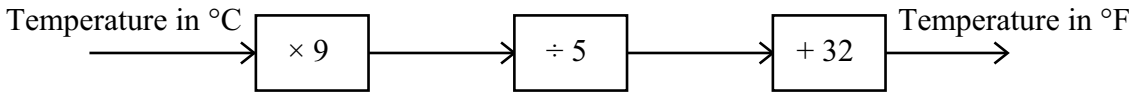
The maximum temperature on Mars is 36°C.
The minimum temperature on Mars is 159°C lower than its maximum temperature.

(c) Work out the minimum temperature on Mars.

..... °C

(2)

You can use this rule to change temperatures in °C to temperatures in °F.



(d) Change 35°C to °F.

..... °F

(3)

(e) Change 68°F to °C.

..... °C

(3)

(Total for Question 6 is 10 marks)

7 (a) Write $\frac{1}{4}$ as a decimal.

.....

(1)

(b) Write 0.27 as a fraction.

.....

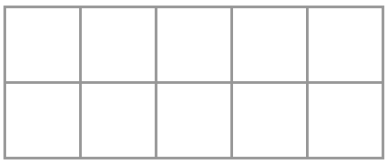
(1)

(c) Write 35% as a fraction in its simplest form.

.....

(2)

(d) Shade 40% of this shape.



(2)

(e) Work out 10% of 560

.....

(1)

(Total for Question 7 is 7 marks)

8 A box contains 4 yellow and 12 green counters.

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

.....

(2)

A bag contains only red counters and blue counters in the ratio 2 : 3

(b) What fraction of the counters in the bag are red?

.....

(2)

(Total for Question 8 is 4 marks)

9 Here is a hexagon.

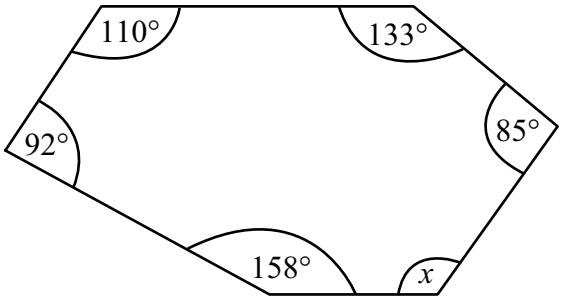


Diagram **NOT** accurately drawn

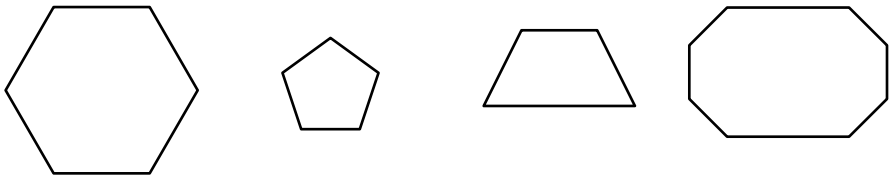
The angles of a hexagon add up to 720°.

Work out the size of the angle marked x.

..... °

(Total for Question 9 is 2 marks)

10 Here are four shapes.



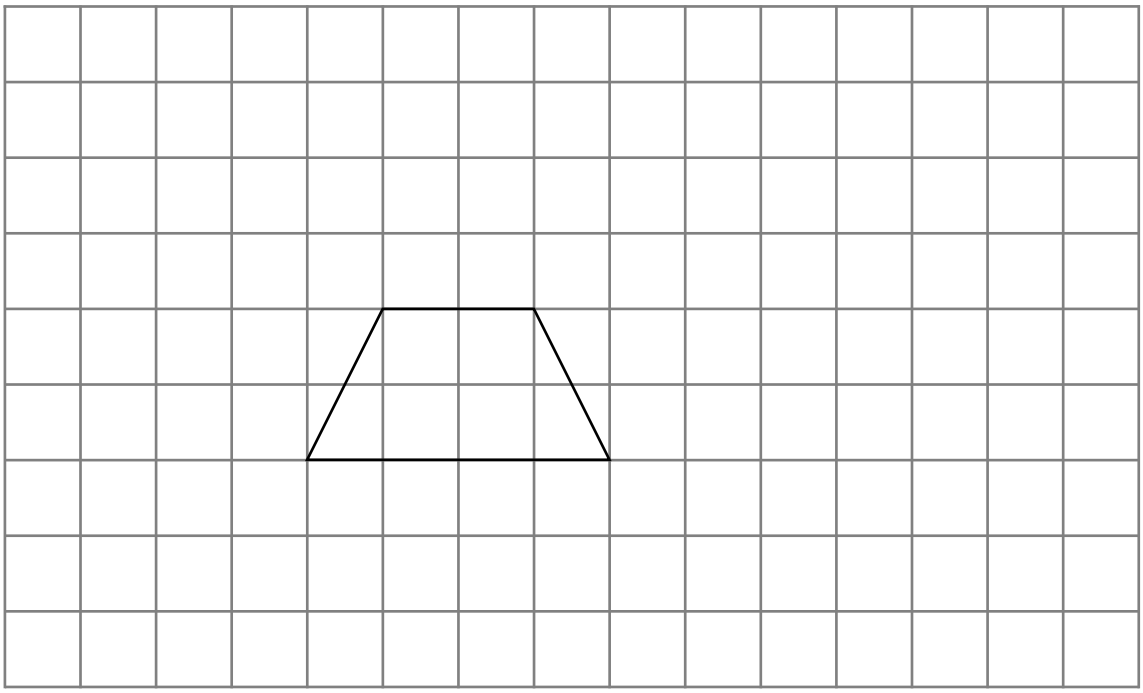
A **B** **C** **D**

(a) Write down the letter of the shape that is an octagon.

.....

(1)

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



(2)

*(c) Explain why a regular 9 sided polygon will **not** tessellate.

(3)

(Total for Question 10 is 6 marks)

11. (a) Work out $\frac{3}{7}$ of 1204

.....

(2)

3 kg of apples cost £2.58

(b) Work out the cost of 5 kg of these apples.

£ .....

(2)

(Total for Question 11 is 4 marks)

12 (a) (i) Use your calculator to work out the value of 3π.
Write down all the figures on your calculator display.

.....

(ii) Write your answer to part (i) correct to 1 decimal place.

.....

(2)

(b) Use your calculator to work out $14.5^2 + \sqrt{6400}$
Give your answer as a decimal.
Write down all the figures on your calculator display.

.....

(2)

(Total for Question 12 is 4 marks)

---

13 (a) Leo thinks of a number.
He adds 4 to his number.
His answer is 16

What number did Leo first think of?

.....

(1)

(b) Kaz thinks of a number.
She divides her number by 7
She then adds 17
Her answer is 29

What number did Kaz first think of?

.....

(2)

(Total for Question 13 is 3 marks)

14 $A = 23 - c$

$c = 15$

(a) Work out the value of A.

.....

(1)

$M = 3n + p$

$n = 7$
$p = 5$

(b) Work out the value of M.

.....

(2)

$K = 3h^2 - j$

$h = -6$
$j = 8$

(c) Work out the value of K.

.....

(2)

(Total for Question 14 is 5 marks)

15 Make g the subject of the formula $d = 3g + 2f$

.....

(Total for Question 15 is 2 marks)

16 Here is a cuboid.

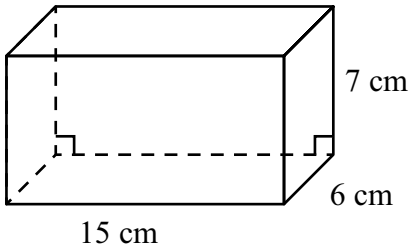


Diagram **NOT** accurately drawn

Work out the volume of the cuboid.

.....

(Total for Question 16 is 3 marks)

17 Andy has some counters.

15% of the counters are red.

$\frac{2}{5}$ of the counters are blue.

The rest of the counters are yellow.

There are 27 yellow counters.

How many blue counters are there?

.....

(Total for Question 17 is 5 marks)

***18**

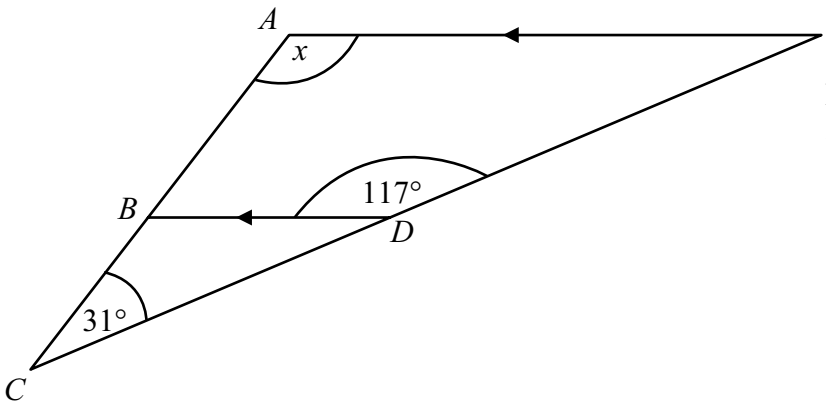


Diagram **NOT** accurately drawn

AE is parallel to *BD*.
ABC and *CDE* are straight lines.

Work out the size of the angle marked *x*.
You must give reasons for your answer.

(Total for Question 18 is 5 marks)

19 The diagram shows a solid prism.

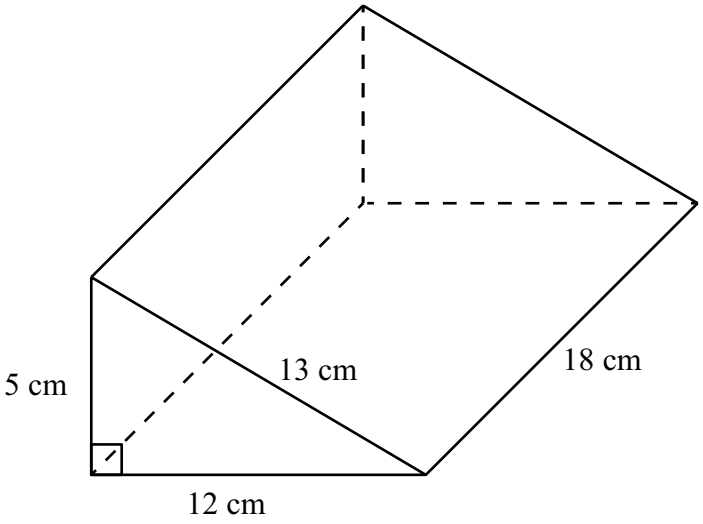


Diagram **NOT** accurately drawn

Work out the total surface area of the prism.

..... cm^2

(Total for Question 19 is 3 marks)

20 The formula for the circumference of a circle is $C = \pi d$.

Work out the circumference of a circle of radius 4.7 cm.
Give your answer correct to 1 decimal place.

..... cm

(Total for Question 20 is 3 marks)

21 (a) Work out 15% of £600

£ .....

(2)

(b) Decrease £150 by 12%.

£ .....

(2)

(Total for Question 21 is 4 marks)

22 n is an integer and $-2 < n \leqslant 3$

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

.....

(2)

Here is a number line.

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

.....

(2)

(Total for Question 22 is 4 marks)

23 The width of a rectangle is a whole number of centimetres.
The length of the rectangle is 9 cm longer than its width.

The perimeter of the rectangle is less than 200 cm.

Find the greatest possible width of the rectangle.

..... cm

(Total for Question 23 is 4 marks)

24

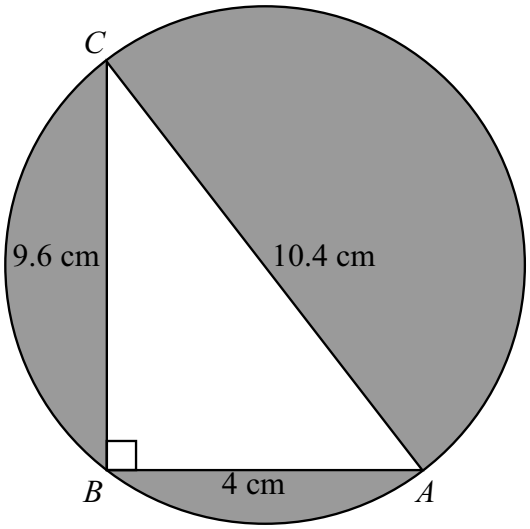


Diagram **NOT** accurately drawn

AC is a diameter of the circle.
ABC is a right-angled triangle.

Work out the area shaded.
Give your answer correct to 1 decimal place.

..... cm^2

(Total for Question 24 is 5 marks)

TOTAL FOR PAPER IS 100 MARKS

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