Edexcel GCSE

Centre Number

Candidate Number

Mathematics B
Unit 3: Number, Algebra, Geometry 2 (Calculator)

Foundation Tier

Tuesday 13 November 2012 – Morning
Time: 1 hour 30 minutes

Paper Reference
5MB3F/01

Total Marks

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

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 80
- 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.
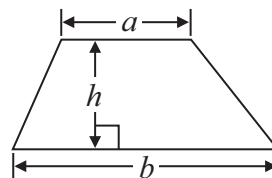- Check your answers if you have time at the end.

Turn over ▶

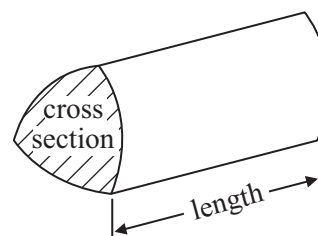**PEARSON**

GCSE Mathematics 2MB01

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

....

(1)

(b) Write 0.75 as a fraction.

....

(1)

(c) Write 200 mm in centimetres.

.... cm
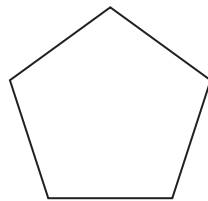
(1)

(Total for Question 1 is 3 marks)

2 (a)
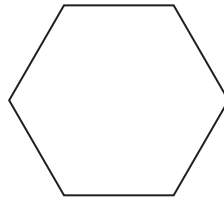
Write down the mathematical name of this polygon.

....

(1)

(b)

Write down the mathematical name of this polygon.

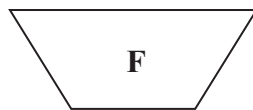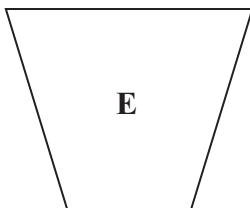...

(1)

(c) Here are eight shapes.

A   B   C   D

E   F   G   H
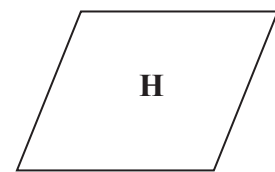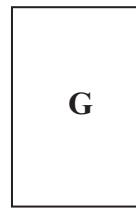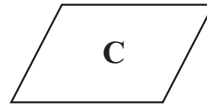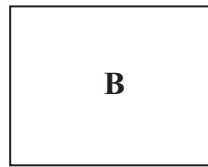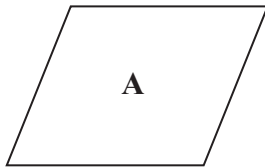
Two of these shapes are congruent.
Write down the letters of these two shapes.

.... and ....

(1)

(Total for Question 2 is 3 marks)

3 Kylie and Roxy go shopping.

Suit £156

Jacket £52

Jeans £28

T-shirt £16

Trousers £21

Coat £125

Shirt £19
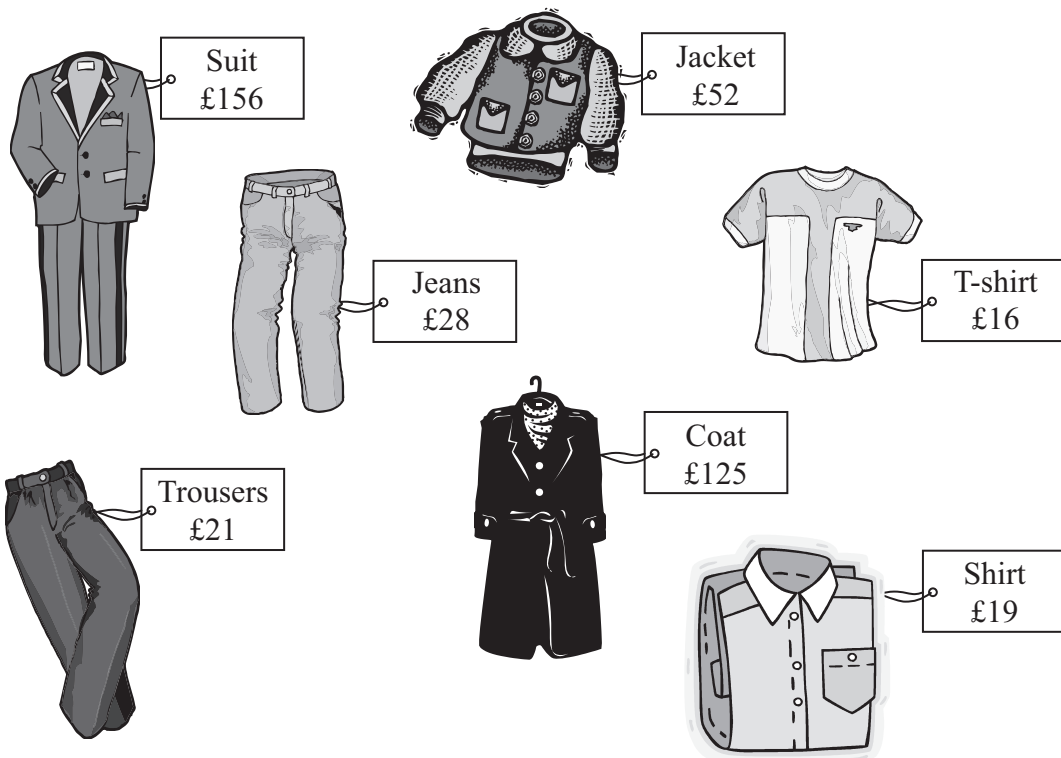
Kylie buys the coat and the T-shirt.

(a) Work out the total cost.

£ ....
(2)

Roxy buys two items of clothing.

She pays with £50
She gets £3 change.

(b) Which two items did Roxy buy?

.... and ....
(3)

(Total for Question 3 is 5 marks)

4 Reflect the shaded shape in the mirror line.

mirror line
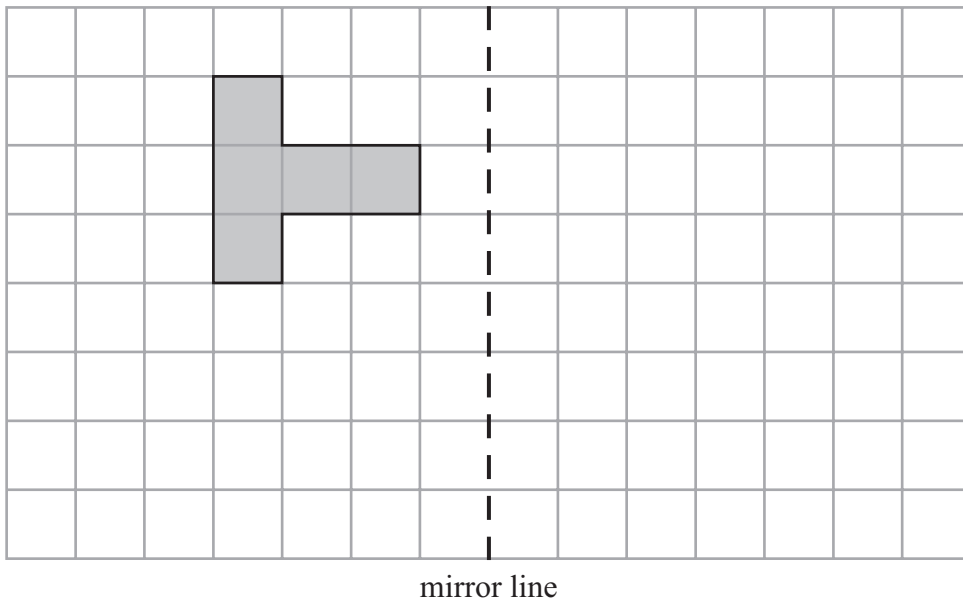
(Total for Question 4 is 2 marks)

*5 Deepa sees these two adverts for jobs.

Flowers Garden Centre

18 hours per week
£5.78 per hour

Fred's DIY Store

20 hours per week
£5.64 per hour

Which job pays the most per week?

(Total for Question 5 is 3 marks)

6 There are 150 people on a train.

At the first stop

   10 people get off the train
   25 people get on the train.

At the next stop

   5 people get off the train
   16 people get on the train.

(a) How many people are on the train now?

....

(3)

The train has 240 seats.
80 of the seats are red.

(b) What fraction of the seats are red?
   Give your fraction in its simplest form.

....

(2)

(Total for Question 6 is 5 marks)

7 Wendy is putting sweets into packets.

She has 9000 sweets.
She puts 45 sweets in each packet.

Wendy puts the packets of sweets into boxes.
She puts 25 packets of sweets into each box.

(a) Work out the total number of boxes Wendy needs.

.... boxes

(3)

Each packet of sweets weighs 690 g.
Each box weighs 260 g.

There are 25 packets of sweets in each box.

(b) Work out the total weight of a full box of sweets.
Give your answer in kilograms.

.... kg

(4)

(Total for Question 7 is 7 marks)

8   Mr and Mrs Pickard and their two children, Lena and Adam, go to a theme park.

Here are the ticket prices for the theme park.

Theme Park

Ticket Prices

Adult	£24
Child under 16	£15
Child under 5	Free
Family ticket	£60

Lena is 8 years old.
Adam is 4 years old.

They can get a family ticket or they can get 4 separate tickets.
It is cheaper to get a family ticket.

How much cheaper?

£ ....

(Total for Question 8 is 4 marks)

9 This rule can be used to work out the time, in seconds, it takes to download music tracks.

$$\text{Time} = 25 \times \text{number of music tracks} + 10$$

(a) Work out the time, in seconds, it takes to download 9 music tracks.

.... seconds

(2)

(b) How many music tracks can be downloaded in 360 seconds?

....

(3)

(Total for Question 9 is 5 marks)

*10 Jamie and Lily are at college.

They want to buy some lockers for their common room.
They decide to do a sponsored walk to raise the money to buy the lockers.

Some people will give them money for each mile they walk.
Some people will give them a fixed amount of money.

Here are Jamie's and Lily's sponsor forms.

Jamie's Form		
Name	**Amount**	**Total**
Jane	£1 per mile	
Neil	£12	£12
Nasir	£2 per mile	
	Total	

Lily's Form		
Name	**Amount**	**Total**
Claire	£10	£10
Ben	£15	£15
John	£1 per mile	
Sam	£5	£5
	Total	

Jamie and Lily each walk 18 miles.
The lockers cost £108

Do Jamie and Lily get enough money to buy the lockers?
You must show your working.

(Total for Question 10 is 5 marks)
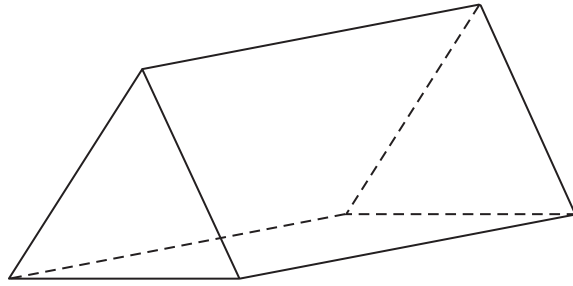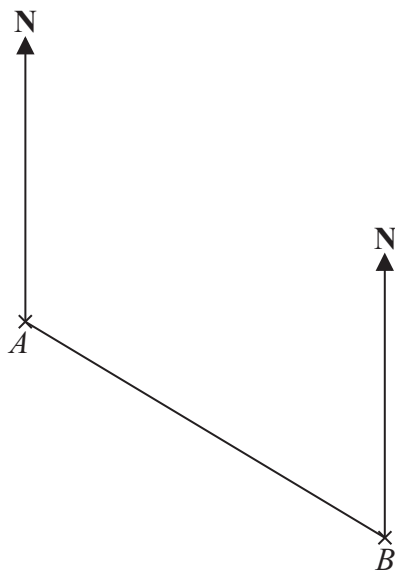
Turn over ▶

11 Here is a triangular prism.

Diagram **NOT** accurately drawn

In the space below, draw a sketch of a net for the triangular prism.

(Total for Question 11 is 2 marks)

12 The scale diagram shows the positions of two towns, *A* and *B*.

N

N

×
A

×
B

Scale: 1 cm represents 10 km

(a) Measure and write down the bearing of town *B* from town *A*.

.... °

(1)

(b) What is the real distance from town *A* to town *B*?
Give your answer in km.

.... km

(3)

(Total for Question 12 is 4 marks)

13 (a) Solve $x - 5 = 7$

$x =$ ....
(1)

(b) Solve $\dfrac{t}{2} = 7$

$t =$ ....
(1)

(c) Solve $y + 2y + 3y = 42$

$y =$ ....
(2)

(d) Solve $5p - 4 = 21$

$p =$ ....
(2)

(Total for Question 13 is 6 marks)

14 On the grid, show how this shape will tessellate.
You should draw at least 8 more shapes.
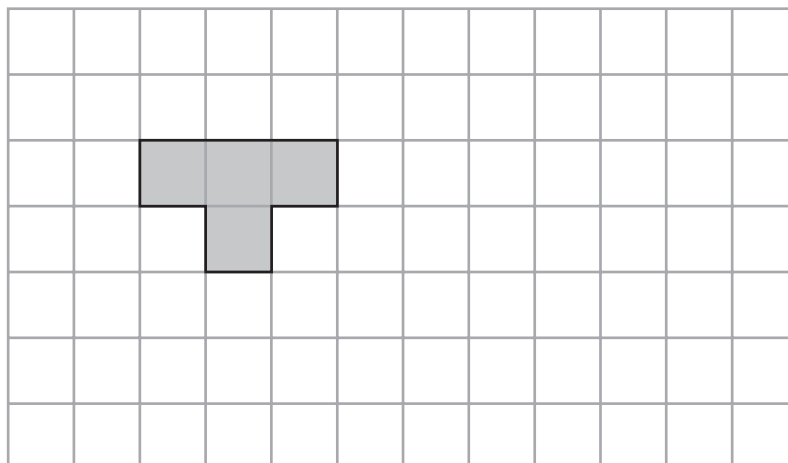
(Total for Question 14 is 2 marks)

*15 Gordon owns a shop.

Here are the prices of three items in Gordon's shop and in a Supermarket.

Gordon's Shop	
400 g loaf of bread	£1.22
1 litre of milk	£0.96
40 tea bags	£2.42

Supermarket	
400 g loaf of bread	£1.15
1 litre of milk	£0.86
40 tea bags	£2.28

Gordon reduces his prices by 5%.
Will the total cost of these three items be cheaper in Gordon's shop than in the Supermarket?

(Total for Question 15 is 3 marks)

Turn over ▶

16 In the space below, use ruler and compasses to **construct** an equilateral triangle with sides of length 8 cm.

You must show all your construction lines.
One side of the triangle has already been drawn for you.

(Total for Question 16 is 2 marks)

*17 Sam is going to paint his garden shed.

The paint is sold in two different shops.

Paint For You	Paul's Paints
2.5 litres	**0.75 litres**
£8.35 plus VAT at 20%	£3.15

Sam needs **7.5 litres** of paint.

Sam wants to buy the cheapest paint.
He is going to buy the paint from one of these shops.

Which shop should he buy the paint from?
You must show your working.

(Total for Question 17 is 4 marks)

Turn over ▶

18 Brian is x years old.
Peter is 4 years older than Brian.
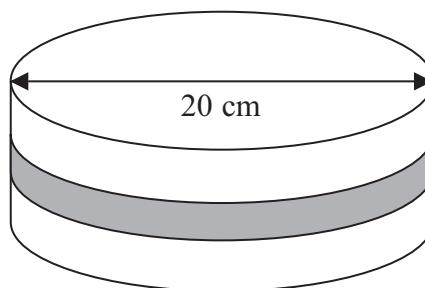Amy is 2 years younger than Brian.

The total of their ages is 26 years.

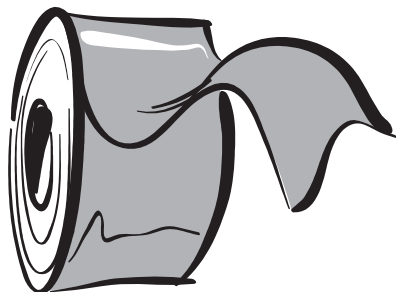Work out the value of x.

....

(Total for Question 18 is 4 marks)

19 Susan has a round cake.
The cake has a diameter of 20 cm.

Diagram **NOT**
accurately drawn

20 cm

Susan wants to put a ribbon round the cake.
What is the least length of ribbon she can use?

....

(Total for Question 19 is 3 marks)

20 $-2 < n \leqslant 3$

n is an integer.

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

....

(2)

$3x + 5 > 16$

x is an integer.

(b) Find the smallest value of x.

....

(3)

(Total for Question 20 is 5 marks)

21

A

14 cm
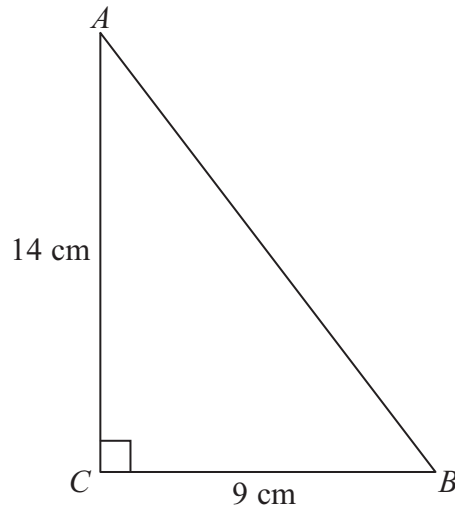
Diagram **NOT**
accurately drawn

C

9 cm

B

Calculate the length of *AB*.
Give your answer correct to 1 decimal place.

.... cm

(Total for Question 21 is 3 marks)

TOTAL FOR PAPER IS 80 MARKS

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