Write your name here

Surname		Other names

Pearson
Edexcel GCSE

Centre Number

Candidate Number

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

Foundation Tier

Monday 10 November 2014 – Morning	**Paper Reference**
Time: 1 hour 30 minutes	**5MB3F/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 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 ▶
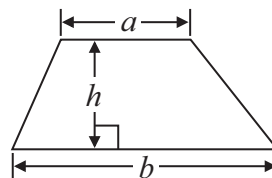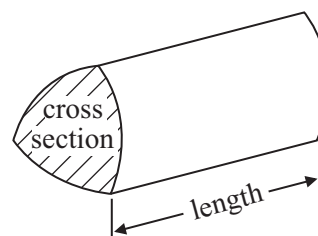
Formulae: Foundation Tier

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) Use your calculator to find the value of

   (i) $5.71 - 3.04$

   ....

   (ii) $2.4 \div 0.6$

   ....

   (iii) $\sqrt{3.24}$

   ....

   (3)

   (b) Write 0.53 as a fraction.

   ....

   (1)

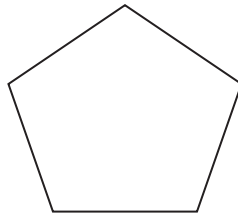   (c) Write $\dfrac{3}{5}$ as a decimal.

   ....

   (1)

   (Total for Question 1 is 5 marks)

2   Here is a polygon.

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

....
(1)

(b) Write down the number of sides of a heptagon.

....
(1)

The diagram shows a quadrilateral.

Diagram **NOT**
accurately drawn

x

95°

56°

87°
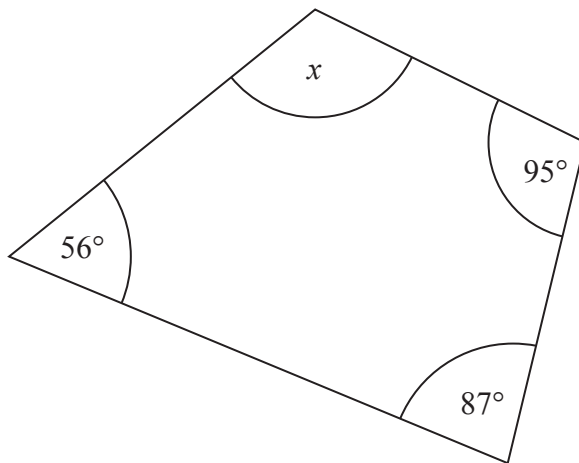
(c) Work out the size of the angle marked x.
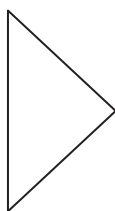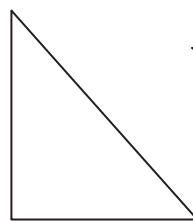
....°
(2)

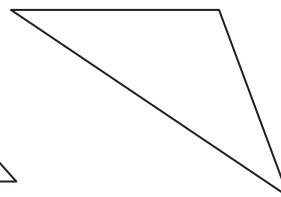Here are eight triangles.
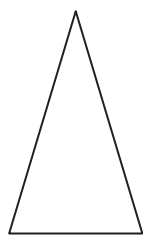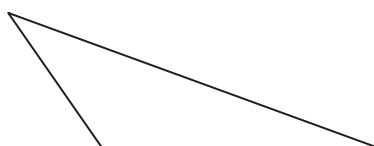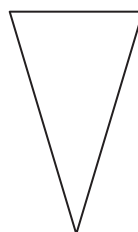

A   B   C   D
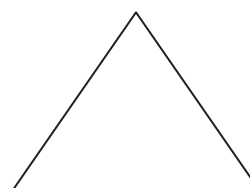
E   F   G   H

Two of these triangles are congruent.

(d) Write down the letters of these two triangles.

.... and ....

(1)

(Total for Question 2 is 5 marks)

3 Emma keeps money in a tin.

The table shows how much money Emma put in the tin and how much money she took out of the tin in each of four weeks.

Week	Money in	Money out
1	£3.50	£2.00
2	£4.00	£6.00
3	£5.00	£0.00
4	£6.50	£3.50

Emma had £15 in the tin at the start of week 1

How much money did Emma have in the tin at the end of week 4?

£...

(Total for Question 3 is 3 marks)

4 (a) Reflect the shaded shape in the mirror line.

mirror line

(1)

(b)

		B					

A
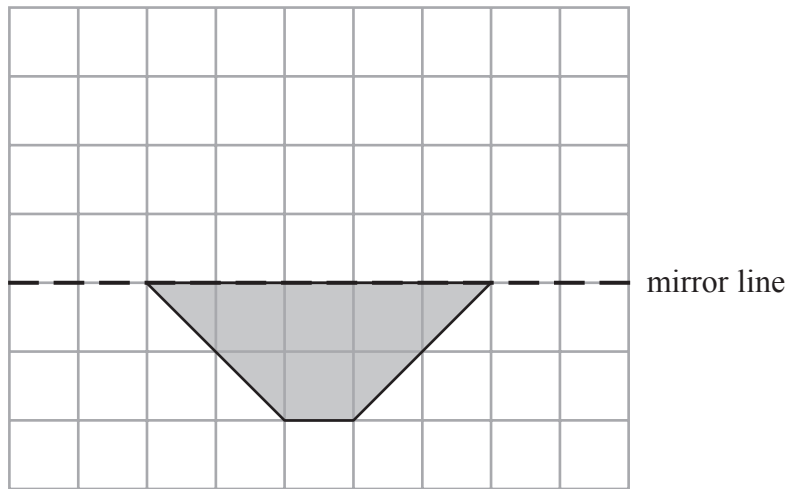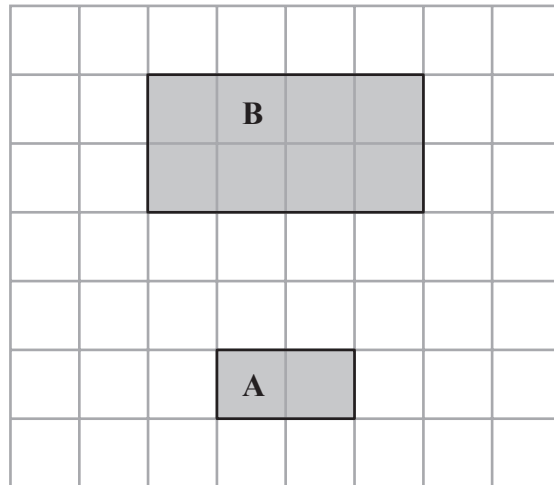
Shape **B** is an enlargement of shape **A**.

Write down the scale factor of the enlargement.

....

(1)

(Total for Question 4 is 2 marks)

5

Diagram **NOT**
accurately drawn

Rome 207 km | Venice 186 km

Rome 178 km | Venice 215 km
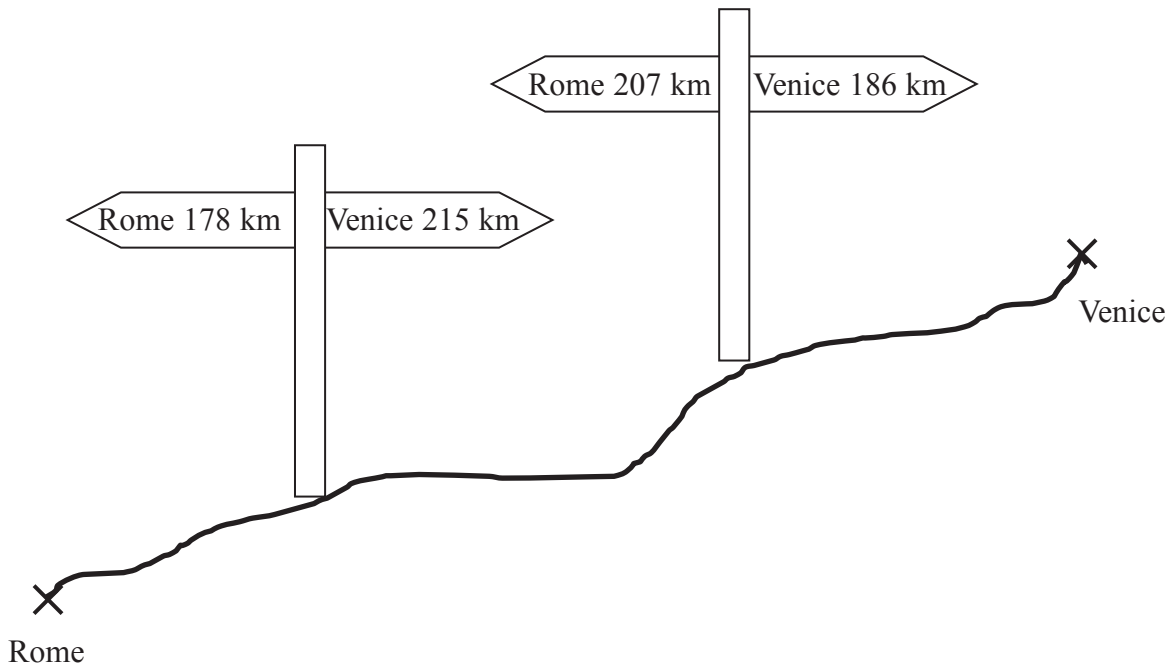
Venice

Rome

The diagram shows two signs at the side of a road.
The road goes between Rome and Venice.

(a) Work out the distance along the road between Rome and Venice.

....km

(2)

(b) Work out the distance along the road between the two signs.

....km

(2)

(Total for Question 5 is 4 marks)

6 (a) Write 2.3 kg in grams.

....g

(1)

(b) Write 350 mm in centimetres.

....cm

(1)

(c) Change 27 000 cm³ to litres.

....litres

(1)

(Total for Question 6 is 3 marks)

*7 The table gives information about the number of bricks and the amount of mortar needed to build some areas of brick wall.

Area of brick wall (m²)	Number of bricks	Amount of mortar (bags)
1	60	2.4
2	120	4.8
3	180	7.2
4	240	9.6
5	300	12

Tony is going to build a brick wall.
The area of the brick wall will be 8 m².

Tony has 450 bricks and 20 bags of mortar.

Does Tony have enough bricks and enough bags of mortar to build the brick wall?
You must show your working.

(Total for Question 7 is 4 marks)

8 (a) Solve $x + x + x = 6$

$x =$ ....

(1)

(b) Solve $t + 5 = 20$

$t =$ ....

(1)

(c) Solve $4y = 36$

$y =$ ....

(1)

(d) Solve $\dfrac{1}{2}f + 5 = 12$

$f =$ ....

(2)

(Total for Question 8 is 5 marks)

*9 Fritz buys 12 pencils.
Each pencil costs 37 pence.

Fritz pays with a £5 note.

Work out the amount of change he should get.

(Total for Question 9 is 3 marks)

10 In the space below, use a ruler and compasses to construct an equilateral triangle with sides of length 5 cm.
You must show all your construction lines.
One side of the triangle has been drawn for you.

———————————

(Total for Question 10 is 2 marks)

11 Stephanie thinks of a positive number.
She squares the number and adds 7
The result is 43

What number did Stephanie think of?

....

(Total for Question 11 is 3 marks)

12 A supermarket sells milk in three sizes of carton.

| 0.5 litres | 1 litre | 2 litres |
| 35p | 65p | £1.25 |

Jerry has £11.50 to spend on milk.

He wants to buy as much milk as possible.

Work out the greatest amount of milk Jerry can buy.

....litres

(Total for Question 12 is 3 marks)

P44592A01424

13 In a game of rugby, the teams score

     5 points for a try,
     2 points for a conversion,
     3 points for a penalty.

The table shows the numbers of tries, conversions and penalties scored by Felton and by Bloomsbury in a game of rugby.

Team	Number of tries	Number of conversions	Number of penalties
Felton	4	2	1
Bloomsbury	2	2	5

Which team scored the greatest total number of points?
You must show your working.

....

(Total for Question 13 is 3 marks)

14 This rule can be used to work out the time, in minutes, it takes to make microchips.

Time = number of microchips ÷ 20 + 4

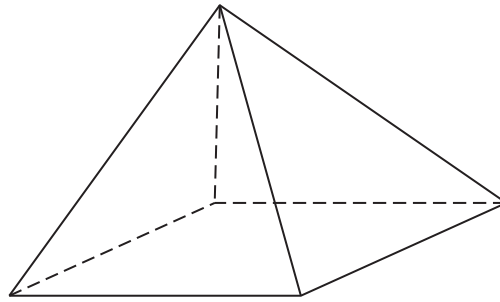(a) Work out the time it takes to make 100 microchips.

....minutes

(2)

(b) Work out the greatest number of microchips that can be made in 60 minutes.

....

(3)

(Total for Question 14 is 5 marks)

15 The diagram shows a square-based pyramid.

In the space below, draw a sketch of a net for the square-based pyramid.

(Total for Question 15 is 2 marks)

P 4 4 5 9 2 A 0 1 7 2 4

16 (a) Write 35 out of 65 as a fraction.
Give your fraction in its simplest form.

....
(2)

(b) Work out £1.25 as a percentage of £8

.............................%
(2)

(Total for Question 16 is 4 marks)

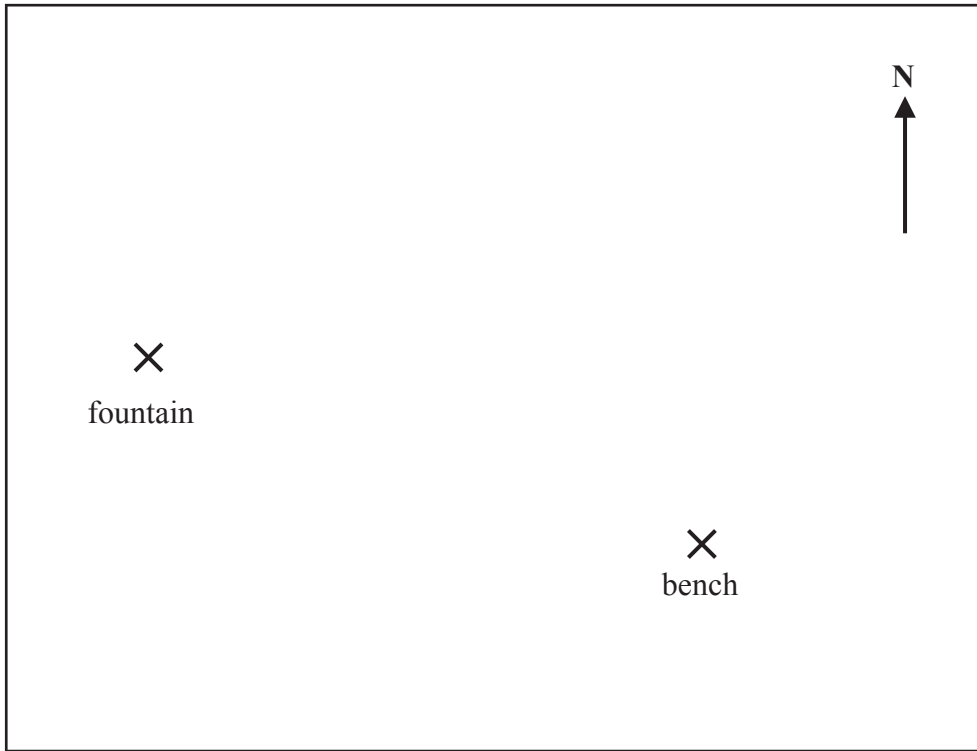**17** The diagram shows a right-angled triangle.
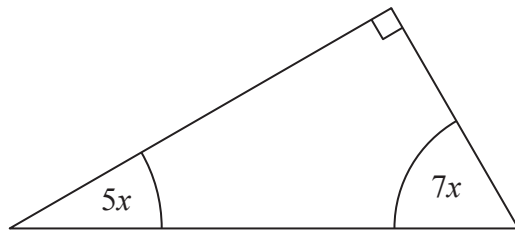
Diagram **NOT** accurately drawn

All the angles are in degrees.

Work out the size of the smallest angle.

.... °

(Total for Question 17 is 3 marks)

18 The diagram shows a scale drawing of a garden.

Scale: 1 centimetre represents 2 metres

(a) Work out the real distance from the fountain to the bench.

....metres

(1)

(b) Measure the bearing of the bench from the fountain.

....°

(2)

Haavi is going to plant a tree in the garden.

The tree must be

less than 7 metres from the fountain,
less than 12 metres from the bench.

(c) On the diagram show, by shading, the region in which Haavi can plant the tree.

(3)

(Total for Question 18 is 6 marks)

*19

Nail Company
50 nails
£4.15 plus VAT at 20%

Hammer Company
25 nails
£2.95
Special offer Buy 100 get 25 free

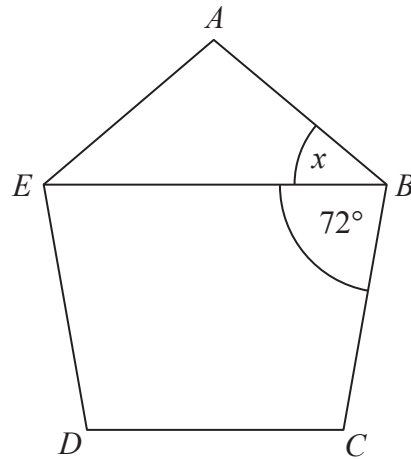Barak is going to buy 550 nails from one of these companies.

He wants to buy the nails at the cheaper cost.

Where should he buy the nails, from the Nail Company or from the Hammer Company?

(Total for Question 19 is 5 marks)

20

Diagram **NOT** accurately drawn

ABCDE is a regular polygon.
EB is a straight line.
Angle *EBC* = 72°.

Work out the size of the angle marked *x*.

.... °

(Total for Question 20 is 3 marks)

21 The equation $x^3 + 27x = 90$

has a solution between 2 and 3

Use a trial and improvement method to find this solution.
Give your answer correct to one decimal place.
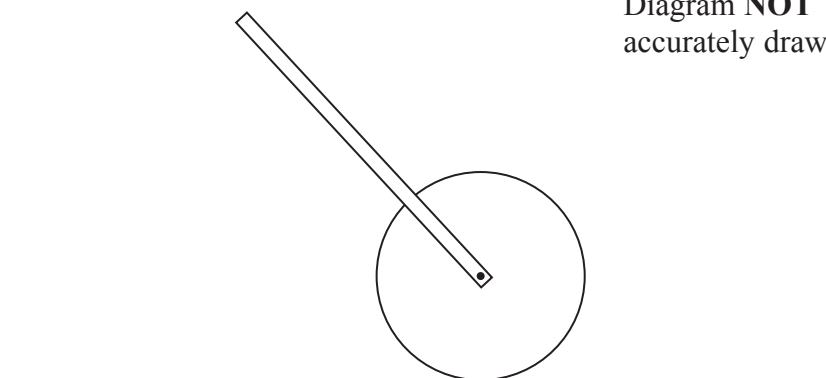You must show all your working.

$x =$ ....

(Total for Question 21 is 4 marks)

22 The diagram shows a trundle wheel.

Diagram **NOT**
accurately drawn

Trundle wheels are used to measure distances along the ground.

The radius of the trundle wheel is 20 cm.

Jim wants to work out the distance between two junctions on a road.
He rolls the trundle wheel between the two junctions.

The trundle wheel rotates exactly 34 times.

Work out the distance between the two junctions.
Give your answer in metres correct to the nearest metre.

....m

(Total for Question 22 is 3 marks)

TOTAL FOR PAPER IS 80 MARKS