Write your name here

| Surname | | Other names |
|---|---|---|
| | | |

**Pearson
Edexcel GCSE**

Centre Number

Candidate Number

# Methods in Mathematics
Unit 1: Methods 1
*For Approved Pilot Centres ONLY*

**Foundation Tier**

Tuesday 13 June 2017 – Morning
**Time: 1 hour 45 minutes**

Paper Reference
**5MM1F/01**

Total Marks

**You must have:** Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser. 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 must not be used.**

## 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.
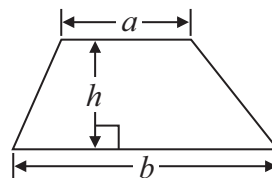
*Turn over* ▶

P 5 3 5 0 3 A 0 1 2 4

**Pearson**

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



**Volume of prism** = area of cross section × length
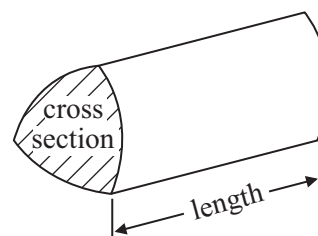
**Answer ALL questions.**

**Write your answers in the spaces provided.**

**You must write down all stages in your working.**

**You must NOT use a calculator.**

**1** (a) Write the number **two thousand and fifty nine** in figures.

.......................................................

**(1)**

(b) Write the number 10 508 in words.

.................................................................................................................................

**(1)**

(c) Write down the value of the **4** in the number 743

.......................................................

**(1)**

(d) What is 2449 when rounded to the nearest hundred?

.......................................................

**(1)**

(e) Write 0.0166 correct to **two** significant figures.

.......................................................

**(1)**

**(Total for Question 1 is 5 marks)**

**2** There are 10 counters in a bag.
5 of the counters are red.
5 of the counters are blue.

| impossible | unlikely | evens | likely | certain |

A counter is taken at random from the bag.

(a) Which word from the box best describes the likelihood that the counter will be either red or blue?

.......................................................................................

(1)

(b) Which word from the box best describes the likelihood that the counter will **not** be red?

.......................................................................................

(1)

(c) Which word from the box best describes the likelihood that the counter will be yellow?

.......................................................................................

(1)

**(Total for Question 2 is 3 marks)**

**3** (a) Work out     $37 \times 1000$

.......................................................
**(1)**

(b) Work out     $196.4 \div 100$

.......................................................
**(1)**

(c) Work out     $600 - 248$

.......................................................
**(1)**

Natasha thinks of two numbers.

One number is 5 more than the other number.
Natasha adds the two numbers and gets 31

(d) Find the two numbers.

.......................... and ..........................
**(2)**

**(Total for Question 3 is 5 marks)**

**4** Write down the number that is halfway between

$$\frac{4}{5} \quad \text{and} \quad 1.4$$

.......................................................

**(Total for Question 4 is 2 marks)**

**5**
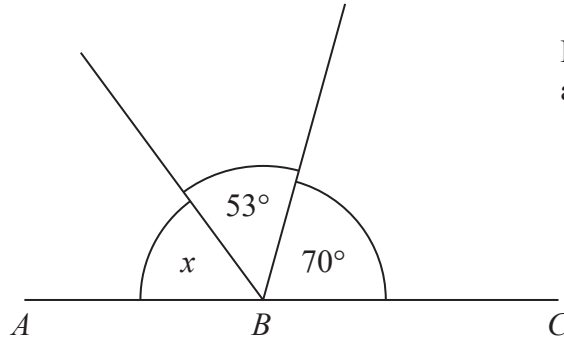


Diagram **NOT** accurately drawn

*ABC* is a straight line.

(i) Work out the size of the angle marked *x*.

$x =$ ................................ °

(ii) Give a reason for your answer.

.............................................................................................................................................

.............................................................................................................................................

**(Total for Question 5 is 3 marks)**

**6** (a) Simplify $4p - 3p + p$

.............................................

**(1)**

(b) Simplify $m \times m \times m \times m$

.............................................

**(1)**

(c) Simplify $x \times y \times 5$

.............................................

**(1)**

(d) Simplify fully $5c - 2d + c - 5d$

.............................................

**(2)**

**(Total for Question 6 is 5 marks)**

**7** Here is a sequence of patterns made from dots.

pattern number 1          pattern number 2          pattern number 3

(a) Draw pattern number 4

**(1)**

(b) (i) How many dots are there in pattern number 8?

.......................................................

(ii) Explain how you found your answer.

..................................................................................................................................................................

..................................................................................................................................................................

**(2)**

A pattern in this sequence is made with exactly 35 dots.

(c) Which pattern number is this?

pattern number ..............................

**(2)**

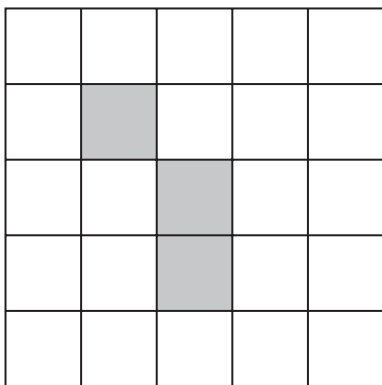**(Total for Question 7 is 5 marks)**

*Turn over* ▶

**8** (a) On the grid below, shade **one** more square to make a shape with one line of symmetry.
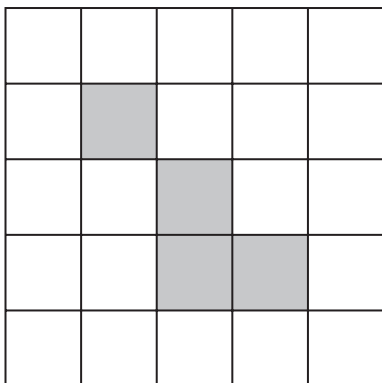
**(1)**

(b) On the grid below, shade **one** more square to make a shape with rotational symmetry of order 2

**(1)**

(c) On the grid below, draw a quadrilateral with **no** lines of symmetry **and** with rotational symmetry of order 2

One of the sides of the quadrilateral has been drawn for you.

**(1)**

**(Total for Question 8 is 3 marks)**

*9   Here are three calculations.

The sum of 18 and 25     The difference between 100 and 59

The product of 6 and 7

Which of these calculations has the largest answer?
You must show how you get your answer.

**(Total for Question 9 is 3 marks)**

10  Dan is $x$ years old.

Angela is 3 years younger than Dan.

(a) Write down an expression, in terms of $x$, for Angela's age.

.......................................................
**(1)**

Olly is three times as old as Dan.

(b) Write down an expression, in terms of $x$, for Olly's age.

.......................................................
**(1)**

**(Total for Question 10 is 2 marks)**

**11** Here is a list of eight numbers.

24       25       26       27       28       29       30       32

From the list, write down

(i) two numbers that add up to 60

..................................... and .....................................

(ii) a factor of 72

.....................................

(iii) a multiple of 15

.....................................

(iv) a square number

.....................................

**(Total for Question 11 is 4 marks)**

**12** (a) Solve   $6x = 24$

$x =$ .....................................
**(1)**

(b) Solve   $4c - 5 = 1$

$c =$ .....................................
**(2)**

**(Total for Question 12 is 3 marks)**

**13** A letter is taken from Box A and a number is taken from Box B.

|  **Box A** | **Box B** |
|---|---|

P
      Q
  R

2
        6
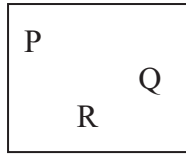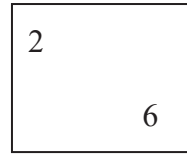
Write down all the possible outcomes.

...................................................................................................................................................

...................................................................................................................................................

**(Total for Question 13 is 2 marks)**

**14**

20 cm

Diagram **NOT** accurately drawn

×        ×        ×        ×
*A*        *B*      *C*     *D*
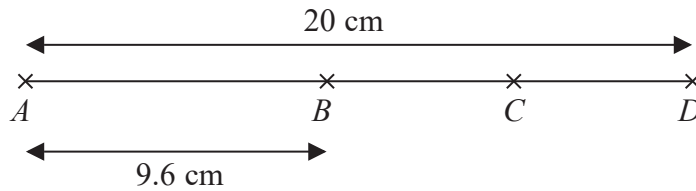
9.6 cm

*A*, *B*, *C* and *D* are points on a straight line.
*AD* = 20 cm
*AB* = 9.6 cm
*BC* = *CD*

Work out the length of *BC*.

.....................................................cm
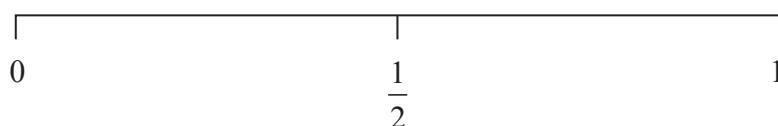
**(Total for Question 14 is 3 marks)**

**15** An ordinary fair dice is thrown once.

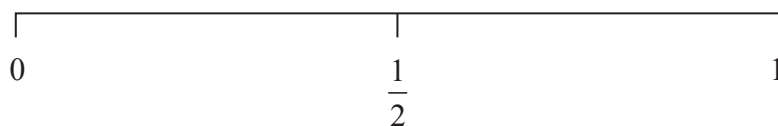(a) On the probability scale below, mark with a cross (×) the probability that the dice will land on an odd number.

```
┌──────────────────┬──────────────────┐
0                  1                   1
                   ─
                   2
```
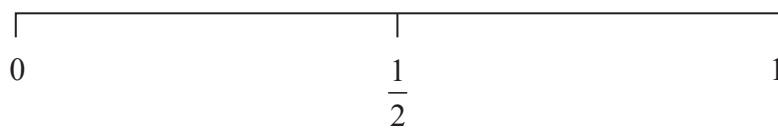
**(1)**

(b) On the probability scale below, mark with a cross (×) the probability that the dice will land on a number less than 7
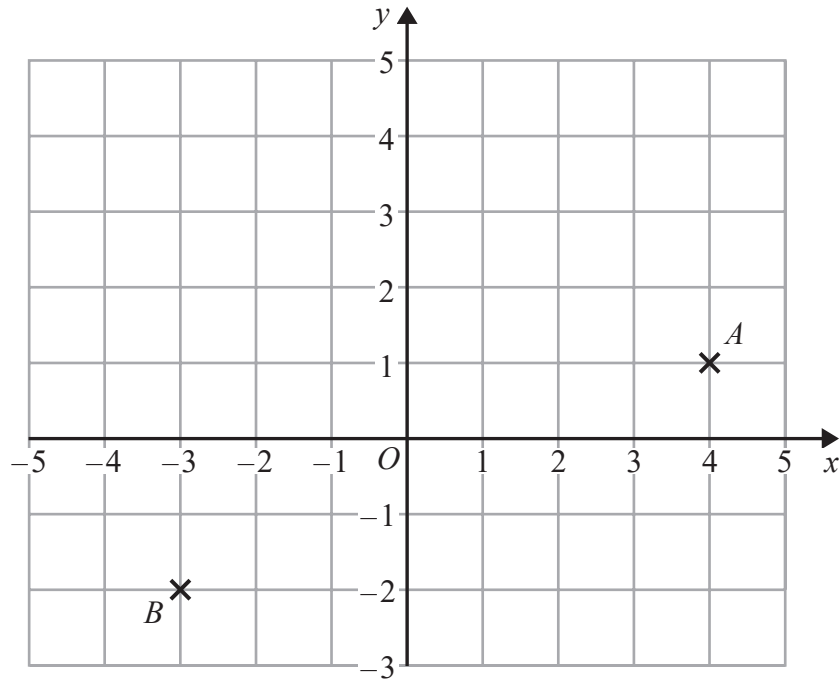
```
┌──────────────────┬──────────────────┐
0                  1                   1
                   ─
                   2
```

**(1)**

(c) On the probability scale below, mark with a cross (×) the probability that the dice will land on 2

```
┌──────────────────┬──────────────────┐
0                  1                   1
                   ─
                   2
```

**(1)**

**(Total for Question 15 is 3 marks)**

**16**



(a) (i) Write down the coordinates of the point *A*.

(........................, ........................)

(ii) Write down the coordinates of the point *B*.

(........................, ........................)

**(2)**

(b) On the grid, plot the point (–4, 0)
Label the point *C*.

**(1)**

*D* is another point on the grid.
The coordinates of the midpoint of *AD* are (1, 2)

(c) Find the coordinates of the point *D*.

(........................, ........................)

**(2)**

**(Total for Question 16 is 5 marks)**

**17** Here is a 5 cm by 2 cm rectangle.

2 cm

Diagram **NOT**
accurately drawn

5 cm
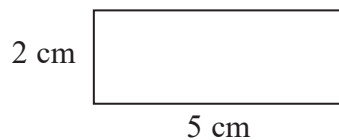
Six of these rectangles are used to make this pattern.
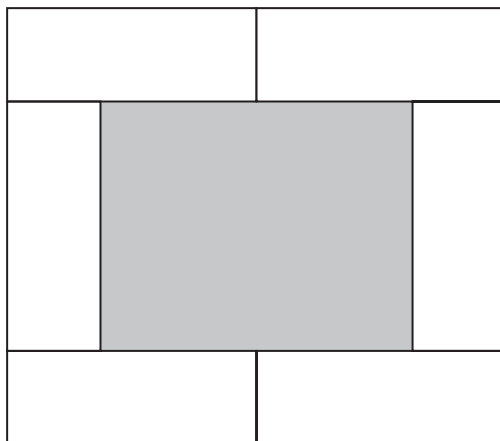
Work out the area of the shaded region.

......................................................cm²

**(Total for Question 17 is 3 marks)**

*P53503A01424*

**18** (a) Work out   285 × 34

.......................................................

(b) Work out   3540 ÷ 15

.......................................................

**(Total for Question 18 is 6 marks)**

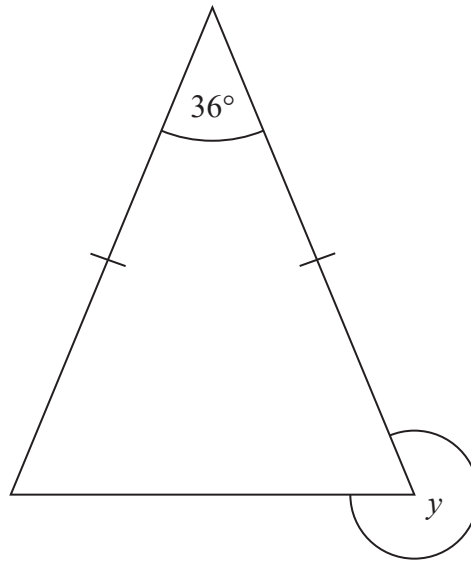**\*19** The diagram shows an isosceles triangle.

36°

Diagram **NOT**
accurately drawn

$y$

Work out the size of angle $y$.

Give reasons for each stage of your working.

**(Total for Question 19 is 4 marks)**

*P53503A01624*

**20** (a) Write $\dfrac{8}{18}$ as a fraction in its simplest form.

.............................................

**(1)**

(b) Write $\dfrac{32}{9}$ as a mixed number.

.............................................

**(1)**

(c) Work out $\dfrac{5}{8} + \dfrac{1}{4}$

.............................................

**(2)**

\*(d) Which of these fractions is the largest?

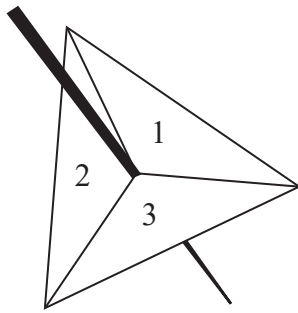$$\dfrac{9}{10} \qquad \dfrac{4}{5} \qquad \dfrac{37}{40}$$

You must show clearly how you get your answer.

**(3)**

**(Total for Question 20 is 7 marks)**

**21** Michelle has two fair 3-sided spinners.
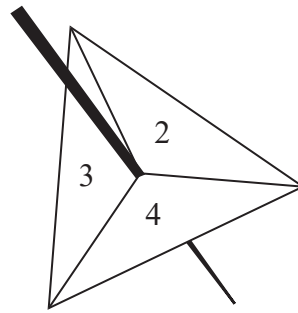
Michelle spins each spinner once.
Each spinner lands on a number.

Michelle multiplies these two numbers together to get her score.

(i) Work out the probability that Michelle's score is 4

.......................................................

(ii) Work out the probability that Michelle's score is at least 8

.......................................................

**(Total for Question 21 is 5 marks)**

**22**

Diagram **NOT** accurately drawn

10 cm

6 cm

6 cm

11 cm
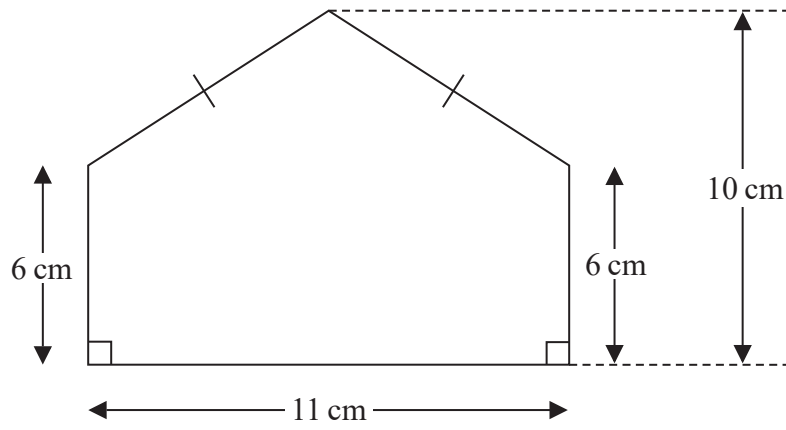
Work out the area of the shape.

.......................................................

**(Total for Question 22 is 5 marks)**

**23** The probability that a biased coin will land on Heads is 0.43

Azmol is going to throw the coin 600 times.

Work out an estimate for the number of times the coin will land on Tails.

.......................................................

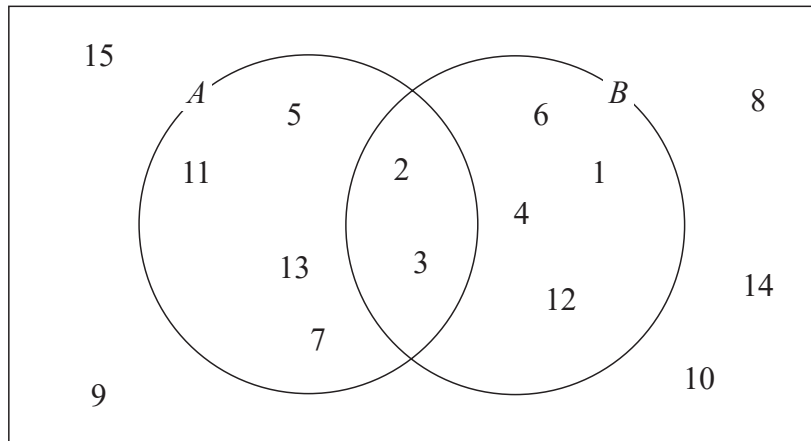**(Total for Question 23 is 3 marks)**

**24** On the grid, draw the graph of $y = 3x + 2$ for values of $x$ from $-2$ to $2$

**(Total for Question 24 is 4 marks)**

**25** The Venn diagram shows the numbers from 1 to 15



| cube | even | odd | prime | square |

(a) Which one word from the box best describes the numbers in set *A*?

.......................................................

(1)

(b) (i) Find P($A \cap B$)

.......................................................

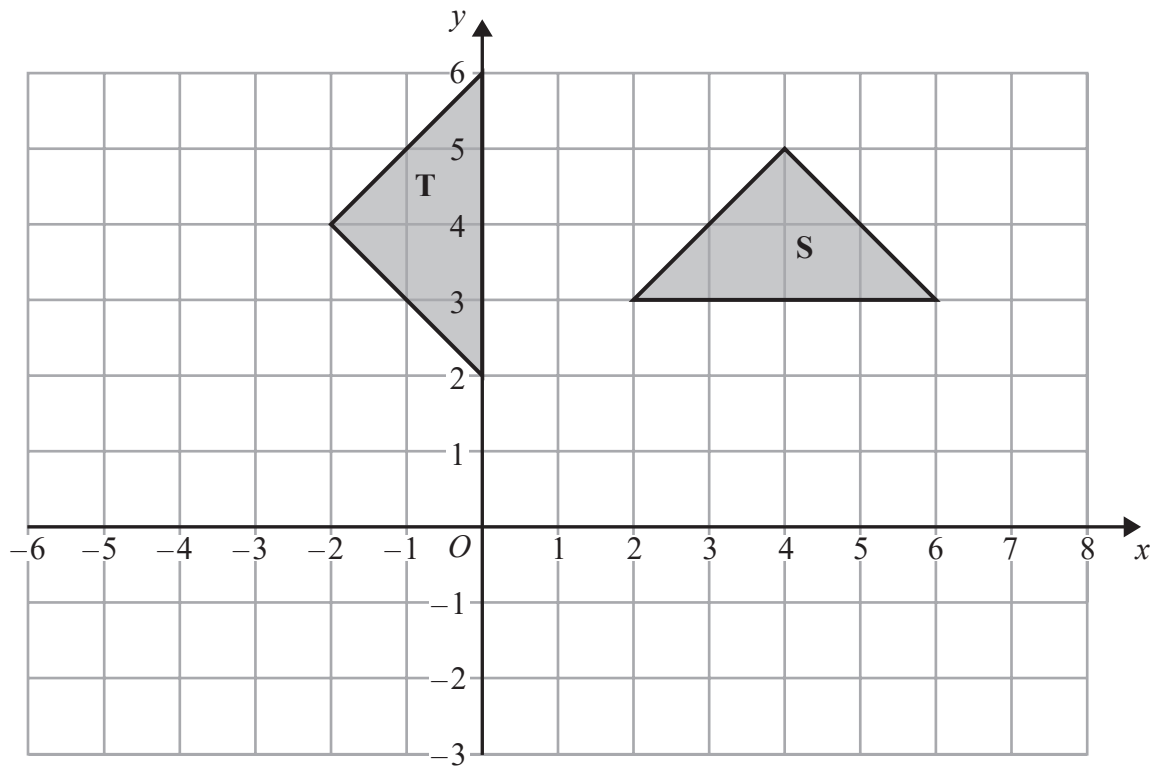(ii) Find P($B'$)

.......................................................

(3)

**(Total for Question 25 is 4 marks)**

**26**



Shape **S** can be transformed to shape **T** by the translation $\begin{pmatrix} 0 \\ -3 \end{pmatrix}$ followed by a rotation.

Describe the rotation.

.....................................................................................................................................................................

.....................................................................................................................................................................

**(Total for Question 26 is 3 marks)**

**TOTAL FOR PAPER IS 100 MARKS**

**END**

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