Write your name here

Surname	Other names

Edexcel GCSE

Centre Number	Candidate Number

Methods in Mathematics

Unit 1: Methods 1

For Approved Pilot Centres ONLY

Foundation Tier

Wednesday 16 November 2011 – Morning
Time: 1 hour 45 minutes

Paper Reference
5MM1F/01

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser. 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 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 ▶

P40114A

6/6/6/3

P 4 0 1 1 4 A 0 1 2 8

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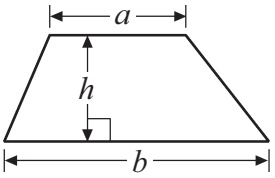
GCSE Mathematics 2MM01

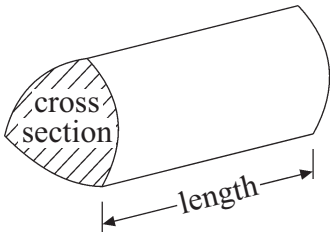
Formulae: Foundation Tier

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.

You must NOT use a calculator.

1 (a) (i) Write in words the number 1025

.....

(ii) Write the number **ten thousand three hundred and one** in figures.

.....

(2)

(b) (i) Write 24 570 correct to the nearest thousand.

.....

(ii) Write 24 570 correct to the nearest hundred.

.....

(2)

(Total for Question 1 is 4 marks)

2 (a) Work out 203 + 106

.....

(1)

(b) Work out 129 ÷ 3

.....

(1)

(c) Work out 23 × 5

.....

(1)

(d) Work out 3 + 2 × 4

.....

(1)

(Total for Question 2 is 4 marks)

3 (a) Simplify $3y + 5y - 2y$

.....

(1)

(b) Simplify $2 \times a \times b$

.....

(1)

(c) Simplify $3xy + 2xy + 7xy$

.....

(1)

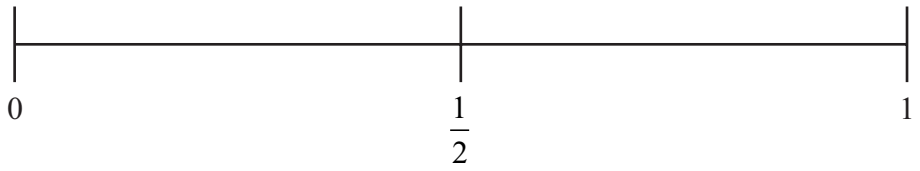
(d) Simplify $6a + 5b + 3a - 2b + 6$

.....

(2)

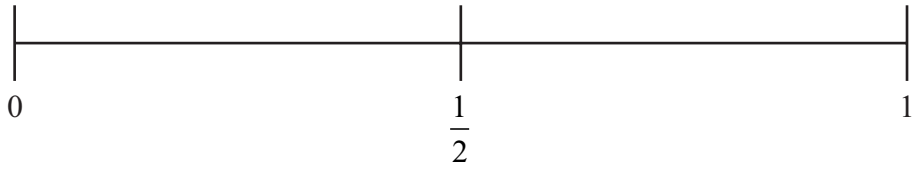
(Total for Question 3 is 5 marks)

4 (a) On the probability scale below, mark with the letter **X** the probability that a fair dice when thrown once will come down on an odd number.



(1)

(b) On the probability scale below, mark with the letter **X** the probability that a fair dice when thrown once will come down on a 4



(1)

(Total for Question 4 is 2 marks)

5 A rectangle is 4 cm by 8 cm.

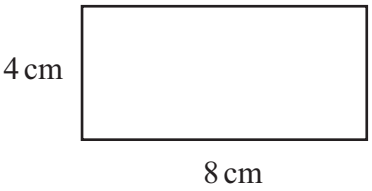


Diagram **NOT** accurately drawn

Four of the rectangles are used to make a larger rectangle as shown below.

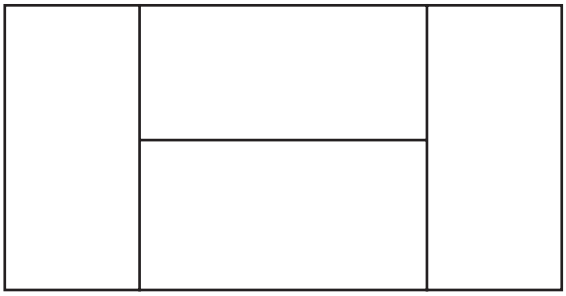


Diagram **NOT** accurately drawn

(a) Work out the perimeter of the larger rectangle.

.....cm

(3)

(b) Work out the area of the larger rectangle.

.....cm^2

(2)

(Total for Question 5 is 5 marks)

6 Here is a list of numbers.

4 5 8 10 13 18

From the list write down

(i) an odd number

.....

(ii) a square number

.....

(iii) a multiple of 6

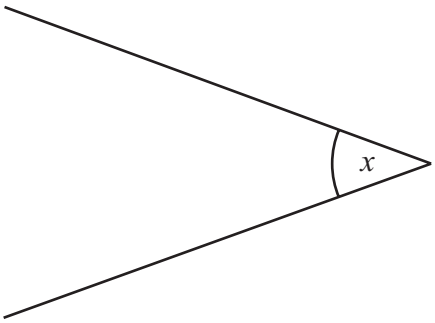
.....

(iv) a prime number

.....

(Total for Question 6 is 4 marks)

7 The angle x is drawn below.



(a) Estimate the size of angle x.

.....°

(1)

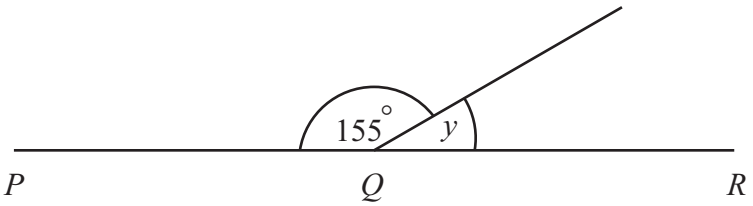


Diagram **NOT** accurately drawn

PQR is a straight line.

(b) (i) Work out the value of y.

.....°

(ii) Give a reason for your answer.

.....

(2)

(Total for Question 7 is 3 marks)

8 Michelle has y pebbles.
Phoebe has 40 pebbles.

(a) Write down an expression for the total number of pebbles they have.

.....

(1)

Mick has x shells.
Andy has three times as many shells as Mick.
They have a total of 40 shells.

(b) Work out how many shells Mick has.

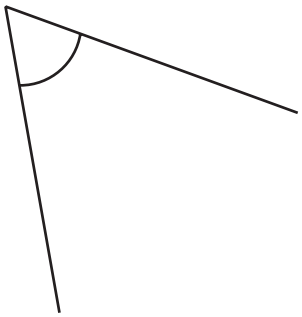
.....

(3)

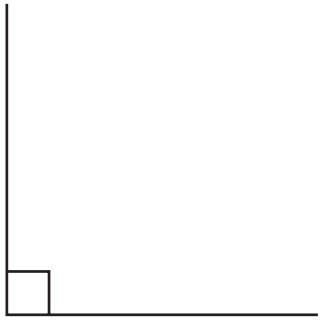
(Total for Question 8 is 4 marks)

9 Here are some diagrams with angles marked.

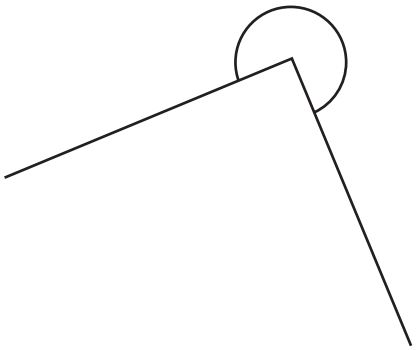
Draw a line from each diagram to the mathematical name of the type of angle.



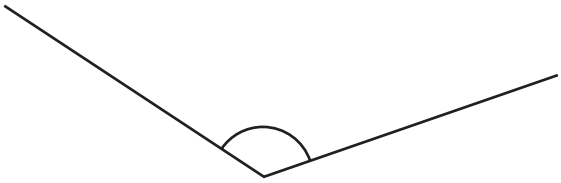
Right Angle



Acute Angle



Reflex Angle



Obtuse Angle

(Total for Question 9 is 3 marks)

10 (a) (i) Write $\frac{8}{10}$ in its simplest form.

.....

(ii) Write $\frac{8}{3}$ as a mixed number.

.....

(2)

*(b) Here are two fractions

$$\frac{3}{4} \text{ and } \frac{5}{6}$$

Which is the larger fraction?

You must show clearly how you get your answer.

(3)

(Total for Question 10 is 5 marks)

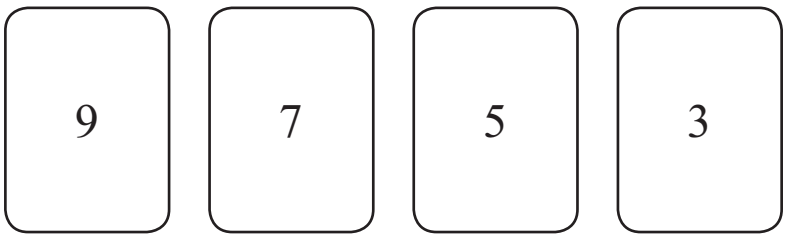
11 Sara thinks of a number.
Half of her number is 24

(a) What is double her number?

.....

(1)

Here are four number cards.



(b) Use only two of the cards to make the smallest two digit number.

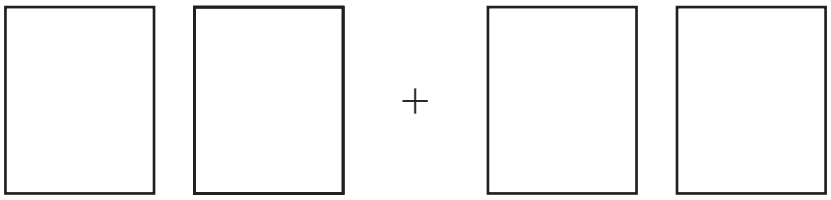
.....

(1)

(c) (i) Here are four digits.

4 7 6 2

Put one digit in each box to make the largest total.
You may only use each digit once.



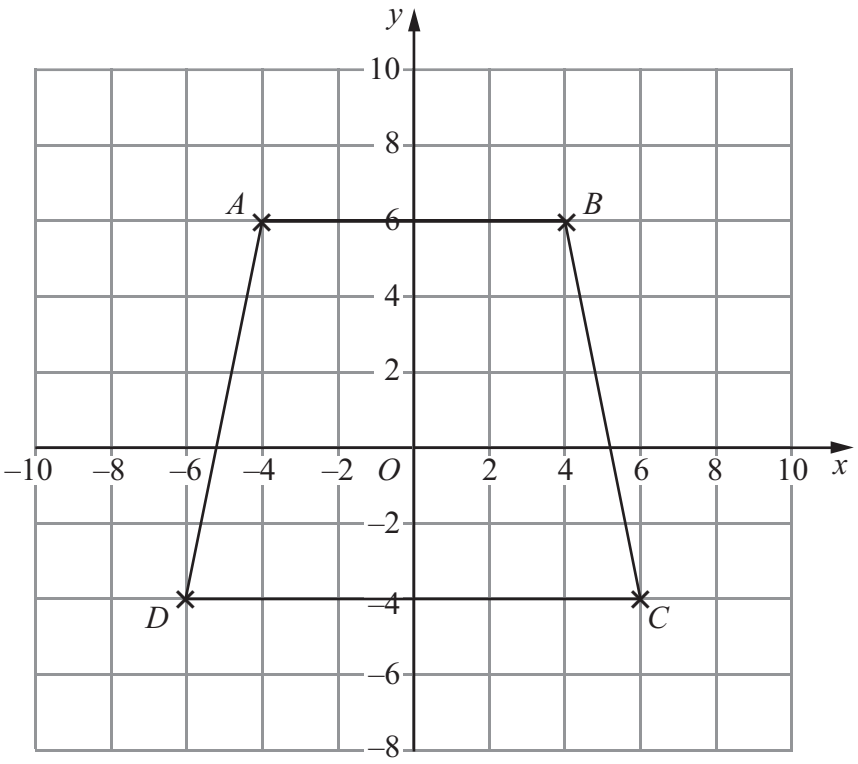
(ii) Write down the total.

.....

(2)

(Total for Question 11 is 4 marks)

12 Here is a grid of centimetre squares.



Four points have each been marked with a cross (×).

(a) Write down the coordinates of

(i) point B,

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

(ii) point C.

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

(2)

(b) What is the name of quadrilateral $ABCD$?

.....

(1)

(Total for Question 12 is 3 marks)

13 Here are the first four terms of a number sequence.

2 6 10 14

(a) (i) What is the next term in the sequence?

.....

(ii) Explain how you found your answer.

.....

(2)

(b) What is the 7th term of the sequence?

.....

(1)

Jane says 34 is in the sequence.

(c) Is Jane correct? .....
Explain your answer.

.....

.....

(1)

(Total for Question 13 is 4 marks)

14 (a) Draw a circle of radius 4 cm.
Use the cross (×) as the centre of your circle.

(2)

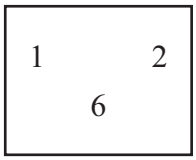
(b) Draw a diameter of your circle.

(1)

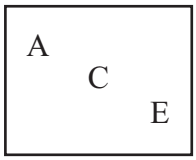
(Total for Question 14 is 3 marks)

15 David takes, at random, a number from Box A.
He then takes, at random, a letter from Box B.

Box A



Box B



(a) List all the possible outcomes he could get.

.....

.....

.....

(2)

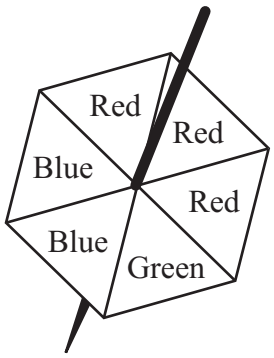
(b) Find the probability that David takes the number 2 and the letter E.

.....

(2)

(Total for Question 15 is 4 marks)

16 Here is a fair 6-sided spinner.



Joel spins the spinner once.
The spinner will land on one of the colours.

(a) On which of the colours is the spinner most likely to land?

.....

(1)

(b) Write down the probability that the spinner will land on green.

.....

(1)

(c) Write down the probability that the spinner will land on red or green.

.....

(2)

(Total for Question 16 is 4 marks)

17 Write the following numbers in order of size.
Start with the smallest number.

$$1 \qquad \frac{1}{4} \qquad \frac{2}{3} \qquad 0.5 \qquad \frac{6}{5}$$

.....

(Total for Question 17 is 2 marks)

18 (a) Solve $6x = 18$

.....

(1)

(b) Solve $y + 7 = 11$

.....

(1)

(c) Solve $3a - 5 = 1$

.....

(2)

(d) Solve $\frac{c}{4} = 8$

.....

(1)

(Total for Question 18 is 5 marks)

19 A bag contains only red counters and blue counters.
There are 4 red counters in the bag.

The probability of taking a blue counter is the same as the probability of taking a red counter.

(a) How many blue counters are there in the bag?

.....

(1)

In another bag there are 14 counters.
The bag contains only red counters, blue counters and yellow counters.
4 of the counters are red.

The probability of taking a blue counter is twice the probability of taking a red counter.

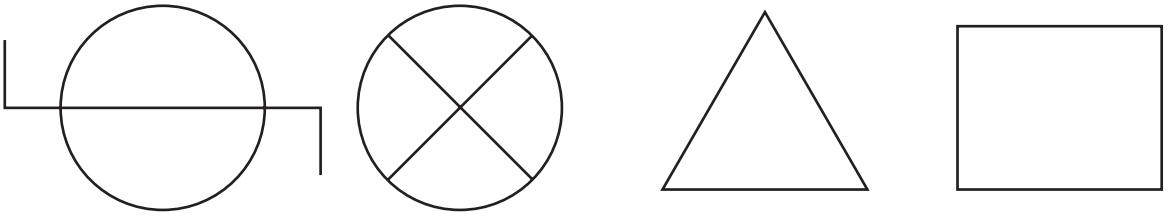
(b) How many yellow counters are there in the bag?

.....

(3)

(Total for Question 19 is 4 marks)

20 Here are four shapes.



A B C D

Two of these shapes have rotational symmetry of order 2

(a) Write down the letter of each of these **two** shapes.

..... and .....

(2)

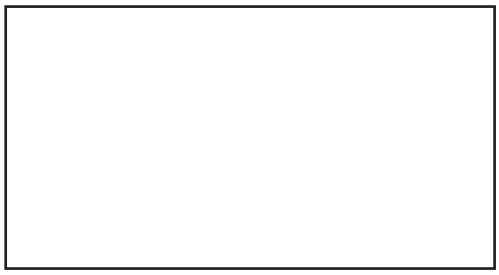
One of these shapes has **no** lines of symmetry.

(b) Write down the letter of this shape.

.....

(1)

(c) Draw all the lines of symmetry on the rectangle below.



(1)

(Total for Question 20 is 4 marks)

21 (a) (i) Work out -7×4

.....

(ii) Work out -5×-3

.....

(2)

(b) Work out 254×23

.....

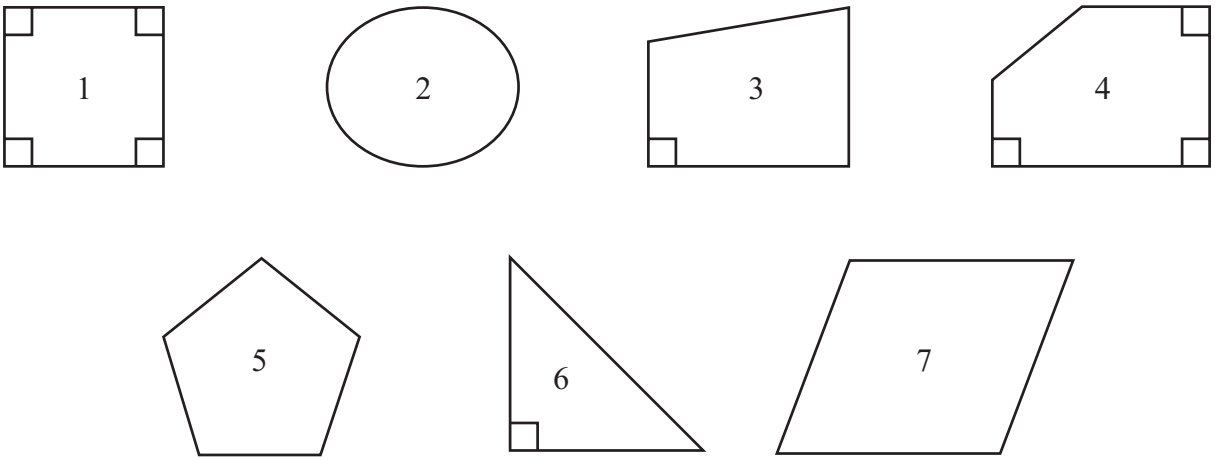
(3)

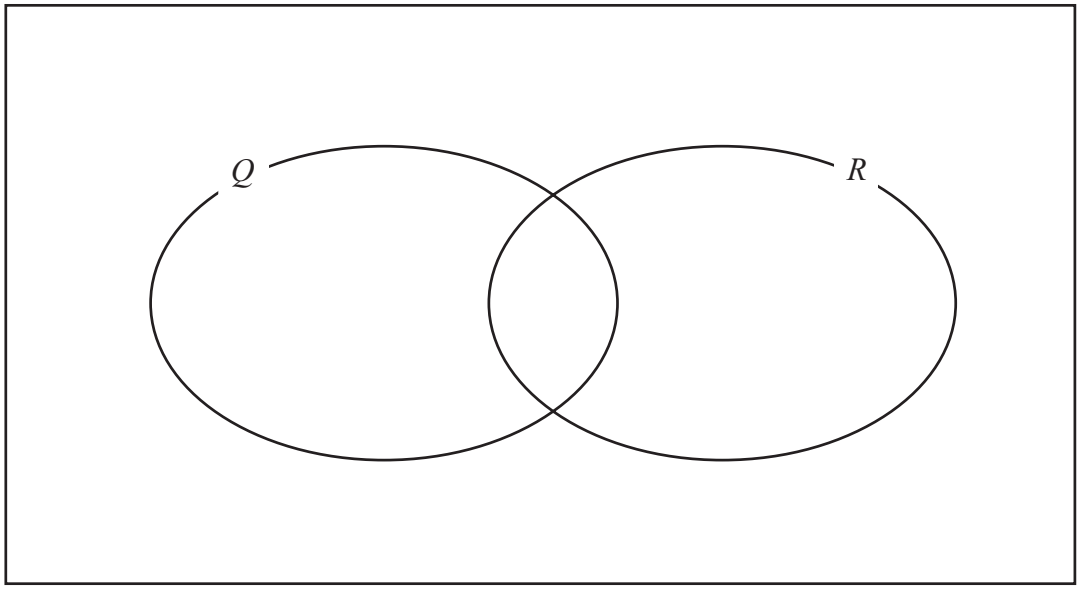
(Total for Question 21 is 5 marks)

22 Here are some shapes.
Some of the shapes are quadrilaterals and some of the shapes have at least one right angle.

Q = {quadrilaterals}.
R = {shapes which have at least one right angle}.

Write the number for each shape in the correct place in the Venn diagram.





(Total for Question 22 is 4 marks)

23 Savio has two fair dice.
He throws the two dice and adds the scores together.

(i) What is the probability of getting a total of exactly 11?

.....

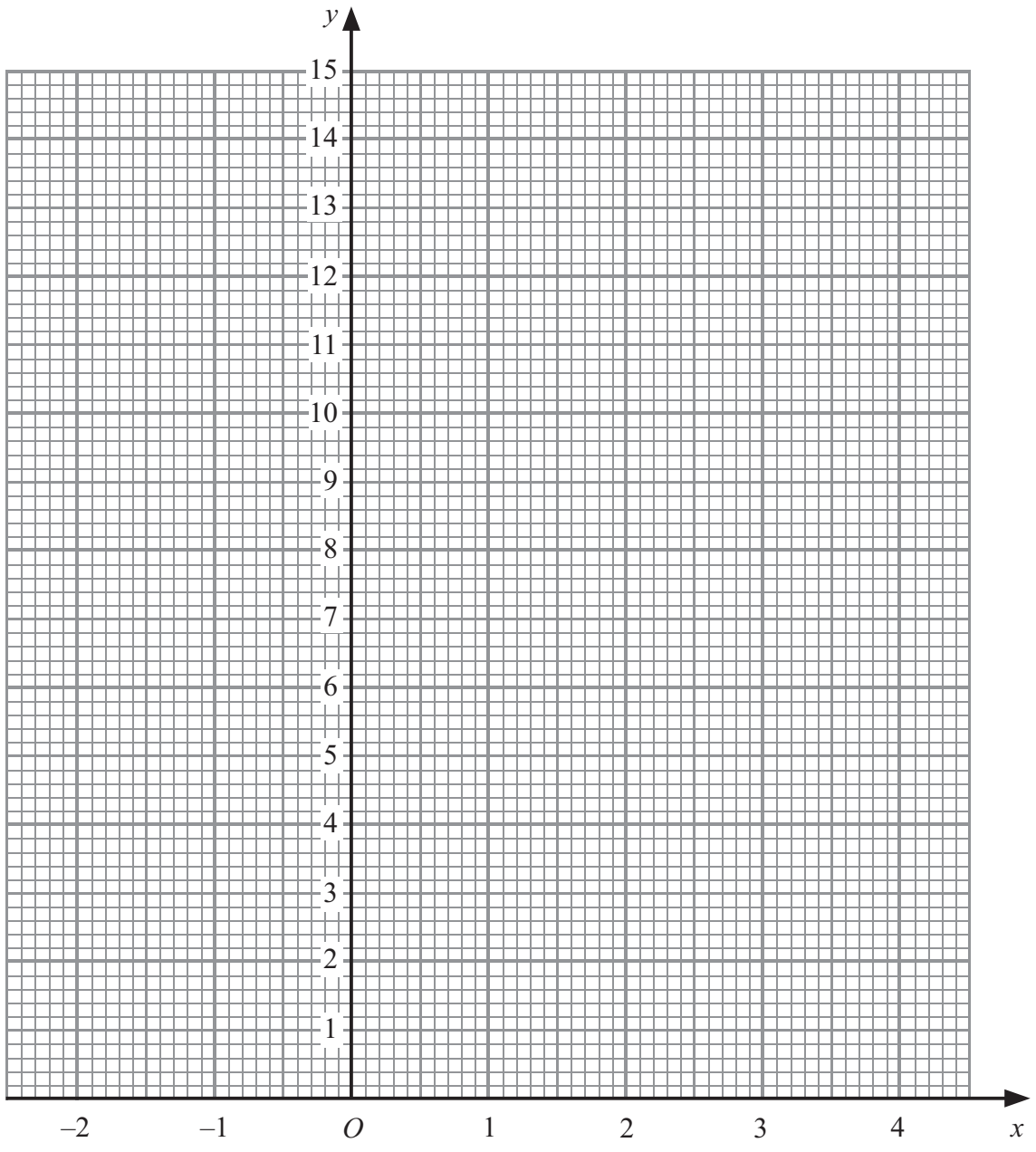
Savio says,

" The probability of getting a total of 5 or more is $\frac{3}{4}$ "

***(ii)** Is Savio correct?
You must show your working.

(Total for Question 23 is 6 marks)

24 (a) On the grid, draw the graph of $y - 2x = 5$ for values of x from $x = -2$ to $x = 4$



(3)

(b) Use your graph to find

(i) the value of y when $x = -0.5$

$y =$ .....

(ii) the value of x when $y = 8.2$

$x =$ .....

(2)

(Total for Question 24 is 5 marks)

25 A pizza shop sells eight types of pizzas.

This table gives information about the first 40 pizzas sold one evening.

Type of Pizza	Total
Margherita	8
Hawaiian	9
4 cheeses	4
Chicken	7
Vegetarian	8
Pepperoni	3
Farmhouse	0
Seafood	1

Using this information

(i) find an estimate for the probability that the next pizza sold will be a Margherita pizza,

.....

(ii) find an estimate for the probability that the next pizza sold will be either a Hawaiian or a Seafood pizza.

.....

(Total for Question 25 is 4 marks)

TOTAL FOR PAPER IS 100 MARKS

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