



THIRD SPACE  
LEARNING

# Mathematics

## Paper 2

### (Non-Calculator)

## Foundation Tier

OCR GCSE

SET 2

# Mathematics Paper 2 (Non-Calculator) Foundation Tier OCR GCSE SET 2

Name

Total marks



Paper length: 1hr 30mins

## 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.
- You must show all your working.
- Diagrams are NOT accurately drawn, unless otherwise indicated.
- Calculators may 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.

## 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.

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

*Please note, this practice paper is an example to help revision, these topics can be tested in other ways and other topics may be included in the actual papers*

**1** Work out

**(a)**  $£2.13 + £6.59$

**(a)** ..... **[1]**

**(b) (i)**  $-3 + 7$

**(b) (i)** ..... **[1]**

**(ii)**  $6 - -10$

**(b) (ii)** ..... **[1]**

---

**2 (a) (i)** Write 240 minutes in hours.

**(a) (i)** ..... hours **[1]**

**(ii)** Write 2.5 hours in minutes.

**(ii)** ..... minutes **[1]**

**(b)** Write 6500 metres in kilometres.

**(b)** ..... km **[1]**

**(c)** Work out

$28\text{ mm} + 5\text{ cm}$

Give your answer in centimetres.

**(c)** ..... cm **[2]**

**3 (a)** Work out

**(i)**  $12 \times 0.8$

**(a) (i)** ..... **[1]**

**(ii)**  $6.09 \div 3$

**(ii)** ..... **[1]**

**(b)** Work out

$5 + 4 \times 3$

**(b)** ..... **[1]**

---

**4** Write down the mathematical name for each of these shapes.

**(a)** A triangle with

**(i)** 3 equal angles

**(a) (i)** ..... **[1]**

**(ii)** Angles of  $40^\circ$ ,  $60^\circ$  and  $80^\circ$

**(ii)** ..... **[1]**

**(b)** A polygon with 5 sides

**(b)** ..... **[1]**

**Turn over**

5 (a) Complete each statement by writing the missing value in the box.

(i)  $\frac{6}{8} = \frac{3}{\square}$

[1]

(ii)  $1\frac{3}{4} = \frac{\square}{4}$

[1]

(b) Work out

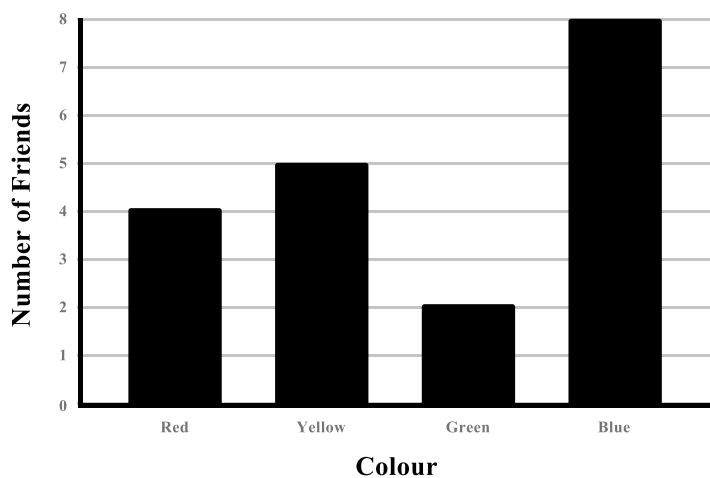
(i)  $\frac{1}{4} + \frac{5}{16}$

(b) (i) ..... [2]

(ii)  $2\frac{1}{3} \times \frac{2}{5}$

(b) (ii) ..... [2]

- 6 Lucy asked some of her friends to choose their favourite colour from red, yellow, green and blue. The bar chart below shows the results.



- (a) How many friends did Lucy ask in total?

(a) ..... [2]

- (b) Write down the mode.

(b) ..... [1]

**Turn over**

7 Eloise goes to the shop. She wants to buy

1 box of cereal for £2.80

2 bananas for 45p each

1 bottle of milk

Milk comes in three different sized bottles:



Eloise wants to buy the biggest bottle of milk she can.

Eloise has £5.

What is the biggest sized bottle of milk Eloise can buy?

Show how you decide.

----- [3]

---

8 (a) Simplify  $3a + a + 6a$

(a) ----- [1]

(b) Expand  $4(2b + 5)$

(b) ----- [1]

9 Ryan had a party. There were 60 guests.

$\frac{1}{6}$  of the guests were men.

$\frac{3}{10}$  of the guests were women.

The rest of the guests were children.

How many children attended Ryan's party?

..... [3]

10 (a) Write  $2 \times 2 \times 2 \times 2 \times 2$  as a power of 2.

(a) ..... [1]

(b) Work out  $\sqrt[3]{27} \times 4^2$

(b) ..... [3]

**Turn over**

- 11** A bag contains yellow counters and green counters only.

number of yellow counters : number of green counters = 2:5

- (a)** A counter is picked at random. What is the probability the counter is yellow?

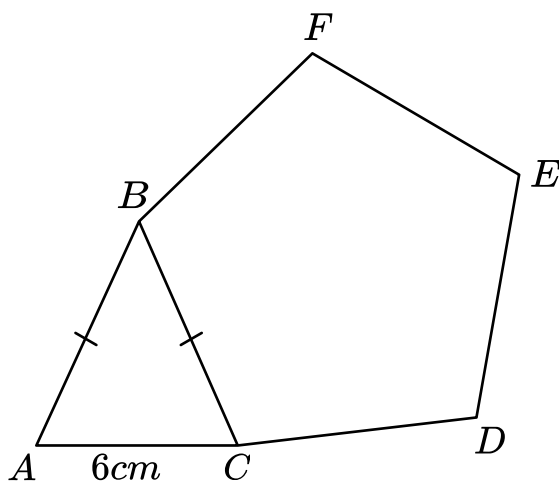
**(a)** ..... [1]

- (b)** There are 10 yellow counters in the bag. How many green counters are there?

**(b)** ..... [2]

- 12** ABC is an isosceles triangle.

BCDEF is a regular pentagon.



The perimeter of triangle ABC is  $24\text{cm}$ .

Work out the perimeter of the shape ABFEDC.

.....  $\text{cm}$  [4]

**13** Write each of these ratios in their simplest form.

**(a)** 16:20

**(a)** ..... : ..... **[1]**

**(b)** 600ml : 3 litres

**(b)** ..... : ..... **[3]**

**14** Jacob asked 40 friends to tell him which animal they like best from cat or dog or rabbit.

7 of the 18 of his female friends said cats.

Twice as many females as males said rabbits.

40% of his friends said dogs.

$\frac{3}{8}$  of his friends said cats.

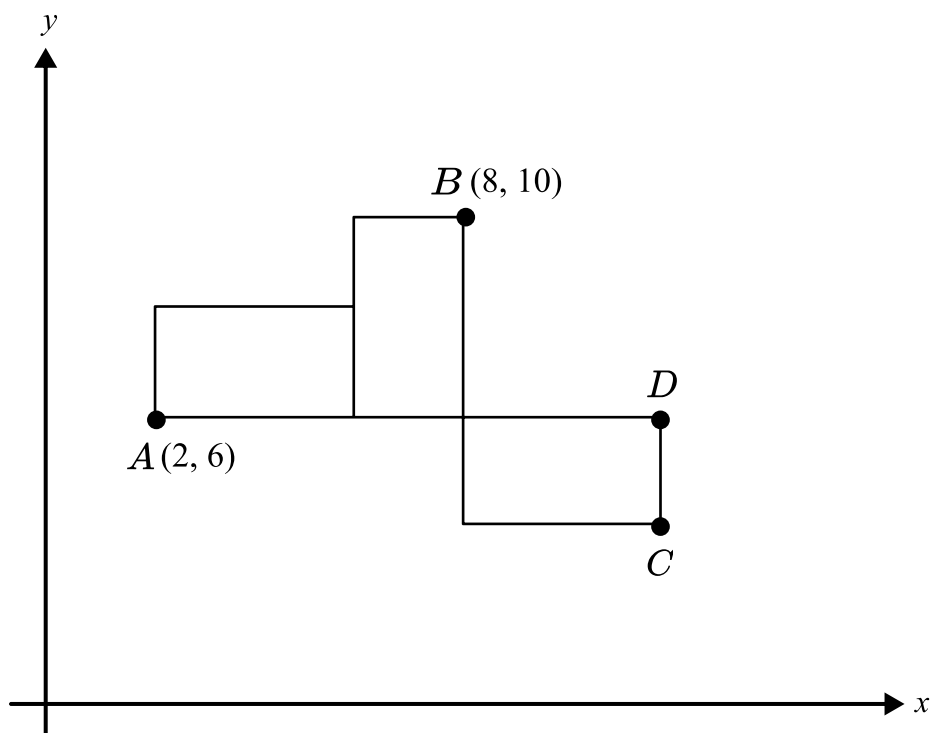
Complete the two-way table.

	Cat	Dog	Rabbit	Total
Male friends				
Female friends				
Total				40

**[3]**

**Turn over**

- 15** A pattern is made from 3 congruent rectangles.



The line AD is parallel to the  $x$ -axis.

The point A has coordinates (2, 6) and the point B has coordinates (8, 10).

Work out the coordinates of point C.

( ..... , ..... ) [4]

- 16** Work out an estimate for  $\frac{210 \times 89}{51}$

..... [2]

- 17** Sam is making beans on toast for lunch. She uses 2 slices of bread, 250g of beans and 40g of cheese.

Bread contains 110 *kcal* per slice.

Baked beans contain 90 *kcal* per 100g.

Cheese contains 400 *kcal* per 100g.

Calculate the total number of calories in Sam's lunch.

You must show all your working.

----- [4]

- 18** The first five terms of an arithmetic sequence are

3            7            11            15            19

- (a)** Write down an expression, in terms of  $n$ , for the  $n$ th term of this sequence.

**(a)** ----- [2]

- (b)** Is the number 101 in the sequence?

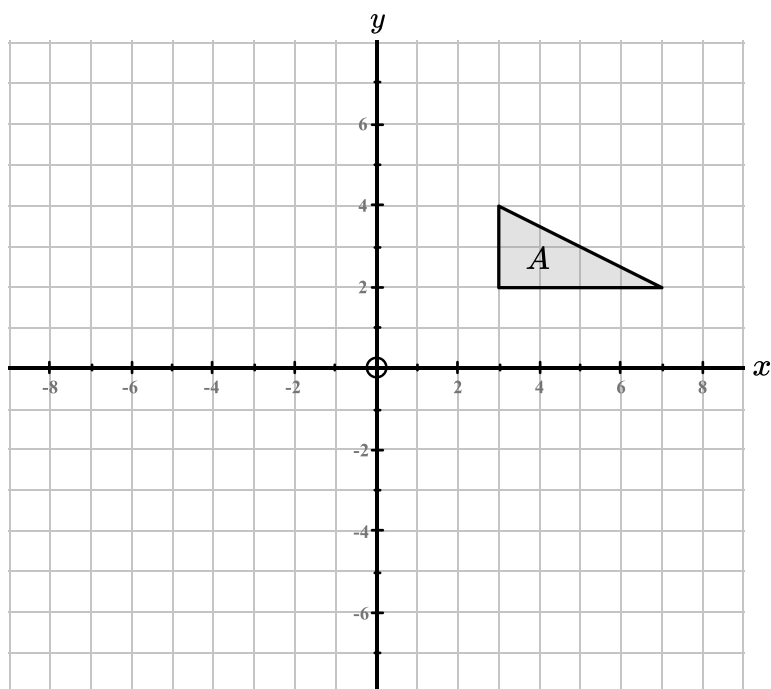
Show how you decide.

**(b)** ----- because -----

----- [2]

**Turn over**

19



Shape A is reflected in the line  $x = 1$  to give shape B.

Shape B is reflected in the  $x$  axis to give shape C.

Describe the single transformation which takes shape A to shape C.

-----

-----

[3]

20 (a) Expand and simplify  $(x - 3)(x - 8)$

(a) ----- [2]

(b) Solve  $x^2 + 4x - 12 = 0$

(b)  $x =$  ----- or  $x =$  ----- [3]

- 21 (a)** Rachel is organising a school disco.

She buys 120 bags of sweets.

The bags of sweets cost 30p each and there is an offer of ‘buy 2 bags, get the 3rd free’ when she buys them.

Rachel wants to make a 25% profit. Assuming that Rachel will sell all the bags of sweets, how much does Rachel need to charge for each bag of sweets?

**(a)** ..... **[4]**

- (b)** Rachel buys lights for the disco. The price of the lights has been reduced by 20%.

Rachel pays £64 for the lights. What was the original price of the lights?

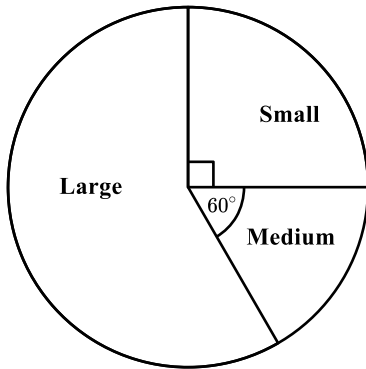
**(b)** £ ..... **[3]**

**Turn over**

**22** Lily has a bag of 60 marbles.

There are three different sizes of marbles.

The pie chart shows information about the size of the marbles.



Small marbles weigh 2.1g.

Medium marbles weigh 3.5g.

Large marbles weigh 4g.

Work out the total weight of the marbles in Lily's bag.

.....g **[4]**

**23** (a) Write  $38 \times 10^3$  in standard form.

(a) ..... [1]

(b)  $2.62 \times 10^p + 4.1 \times 10^q = 262.41$

Write down the values of  $p$  and  $q$ .

(b)  $p =$  .....

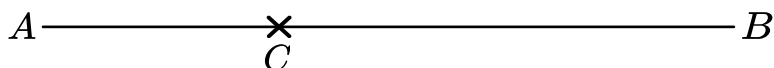
$q =$  ..... [2]

---

**24** C is a point on the straight line AB.

Construct the perpendicular to the line AB at the point C.

You must show all construction lines.



[3]

**Turn over**

25 Here is some information about the number of hours the boys from a class spent revising for their maths GCSE.

Number of hours, $t$	Number of students
$0 \leq t < 5$	2
$5 \leq t < 10$	6
$10 \leq t < 15$	4
$15 \leq t < 20$	5
20 or more	2

The range of the number of hours spent revising by the girls in the class was 23 hours.

Josh says that the range for the girls is greater than the range for the boys.

Is Josh correct? Circle your answer.

Yes

No

Can't tell

[1]

Explain why this is the case.

[1]

**26** Oscar has designed a game.

Oscar has a set of 10 cards, numbered 1 to 10.

A player wins the game if they pick a card that is a prime number.

Olivia picks one card.

**(a)** Find the probability that Olivia wins.

**(a)** ..... **[2]**

Oscar will charge 50p to play the game.

The prize for winning is £1.

200 people play the game.

**(b)** Work out an estimate for the amount of money Oscar will make.

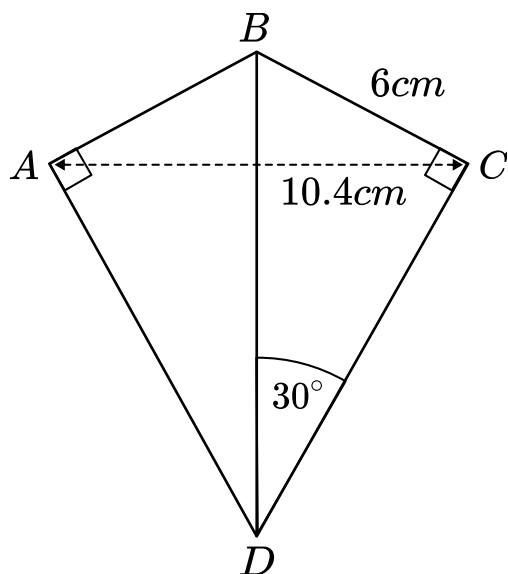
**(b)** £ ..... **[3]**

**Turn over**

- 27 (a) Write down the exact value of  $\sin 30$ .

(a) ..... [1]

- (b) ABCD is a kite.



$$BC = 6\text{cm}$$

$$AC = 10.4\text{cm}$$

Work out the area of ABCD.

(b) .....  $\text{cm}^2$  [4]

**END OF QUESTION PAPER**

# Help ease the pressure with a personalised revision programme for each of your target KS4 students

Our one to one GCSE revision programme is designed to help your target students reach their potential in their GCSE maths exams.

Our specialist maths tutors work one to one with each student, focusing on securing core KS4 content and building familiarity with the kinds of questions they'll be tackling in their GCSE exams.

Get in touch today:

✉ [hello@thirdspacelearning.com](mailto:hello@thirdspacelearning.com)

🔍 [thirdspacelearning.com](https://thirdspacelearning.com)

☎ 0203 771 0095