

Teach Me Maths

Please write clearly in block capitals.

Name _____

Date _____

GCSE MATHEMATICS

F

Foundation Tier • Paper 1 (Non-Calculator)

Mock Set A

For AQA GCSE Mathematics (8300)

Time allowed: 1 hour 30 minutes

Materials

For this paper you must have:

- mathematical instruments
- the Formulae Sheet (the last page of this paper).

You must **not** use a calculator.

For the marker
TOTAL (out of 80)

Instructions

- Write in black ink or black ball-point pen. Use a pencil for diagrams.
- Write your name and the date at the top of this page.
- Answer **all** questions.
- Write your answers in the spaces provided. If you need more room, use extra paper and write the question number next to your answer.
- Do all your rough work on this paper. Cross out any work you do not want to be marked.

Information

- The marks for each question are shown in brackets.
- The maximum mark for this paper is 80.
- You may use extra answer paper, graph paper and tracing paper.

Advice

In every calculation, show clearly how you get your answer.

Practice paper written by Teach Me Maths in the style of AQA GCSE Mathematics (8300). Not an official AQA paper.

Answer **all** questions in the spaces provided.

- 1** (a) Write down the value of the 8 in the number 52 816

[1 mark]

Answer _____

- (b) Write these numbers in order of size.

Start with the smallest.

6.38

6.083

6.308

6.03

[1 mark]

Answer _____

- 2** (a) Work out $924 \div 6$

[1 mark]

Answer _____

- (b) Work out $5003 - 1467$

[2 marks]

Answer _____

- 3 (a) Complete the statement.

3.5 kilograms = _____ grams

[1 mark]

- (b) Imran's sponsored cycle route is 35 miles long.

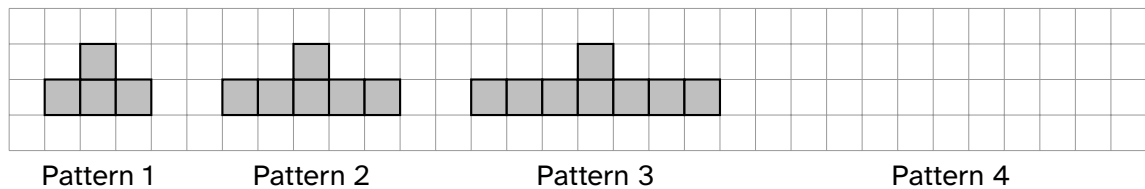
Use 5 miles = 8 kilometres

Convert 35 miles to kilometres.

[2 marks]

Answer _____ km

- 4 Here are the first three patterns in a sequence of patterns made from squares.



- (a) Draw Pattern 4 on the grid.

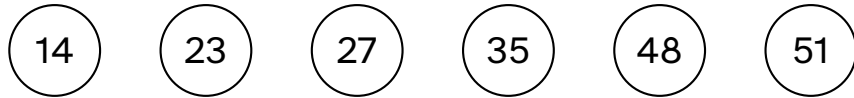
[1 mark]

- (b) How many squares are in Pattern 8?

[1 mark]

Answer _____

- 5** In a quiz game, six numbered balls are taken from a bag.



- (a) Write down the number that is a factor of 96

[1 mark]

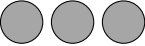
Answer _____

- (b) Write down the number that is a prime number.

[1 mark]

Answer _____

- 6 The pictogram shows the number of books borrowed from a school library on four days.

Monday	
Tuesday	
Wednesday	
Thursday	
Friday	

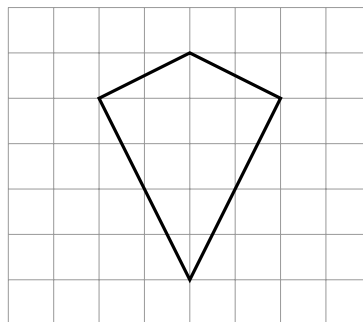
Key:  represents 4 books

60 books were borrowed altogether from Monday to Friday.

Complete the pictogram for Friday.

[3 marks]

- 7 Here is a shape drawn on a square grid.



How many lines of symmetry does the shape have?

[1 mark]

Answer _____

- 8 Here are the prices at a climbing centre.

Peak Wall Climbing Centre	
Adult ticket	£12.80
Child ticket	£8.50

VOUCHER
£5 off the total cost when you spend £40 or more

A family of 2 adults and 3 children go climbing.

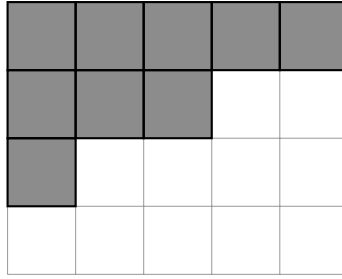
They use the voucher and pay with a £50 note.

How much change should they get?

[4 marks]

Answer £ _____

- 9 (a) What percentage of the grid is shaded?



[1 mark]

Answer _____ %

- (b) Work out 15% of 340

[2 marks]

Answer _____

- 10** (a) Leon simplifies $5p \times 2q$

Here is his answer.

$$5p \times 2q = 7pq$$

What mistake has Leon made?

[1 mark]

- (b) Expand and simplify $3(2x + 5) - 4x$

[2 marks]

Answer _____

- 11** Two youth clubs record how their members travel to the club.

At Northfield Youth Club, $\frac{5}{8}$ of the members walk there.

At Riverside Youth Club, $\frac{3}{5}$ of the members walk there.

Which club has the greater proportion of members who walk there?

You must show your working.

Tick a box.

[2 marks]

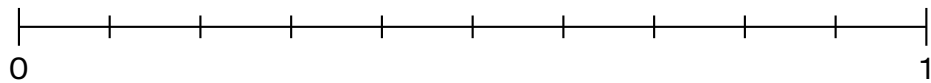
☐ Northfield ☐ Riverside

- 12** In a board game, a bag contains only red, blue and yellow counters.
The table shows the number of counters of each colour.

Colour	Red	Blue	Yellow
Number of counters	9	6	5

A counter is taken at random from the bag.

- (a) On the probability scale, mark with an arrow ($\downarrow$) the probability that the counter is blue.



[1 mark]

- (b) Some of the red counters are taken out of the bag.
The same number of yellow counters are put into the bag.

A counter is now taken at random.

The probability that it is red is the same as the probability that it is yellow.

How many red counters were taken out?

[2 marks]

Answer _____

13 n is a positive whole number.

For each statement, tick **one** box.

[3 marks]

	Always true	Sometimes true	Never true
$2n + 1$ is an odd number	☐	☐	☐
$5n$ ends in the digit 5	☐	☐	☐
$4n + 2$ is a multiple of 4	☐	☐	☐

14 Grace and Owen share a raffle prize in the ratio Grace : Owen = 2:7

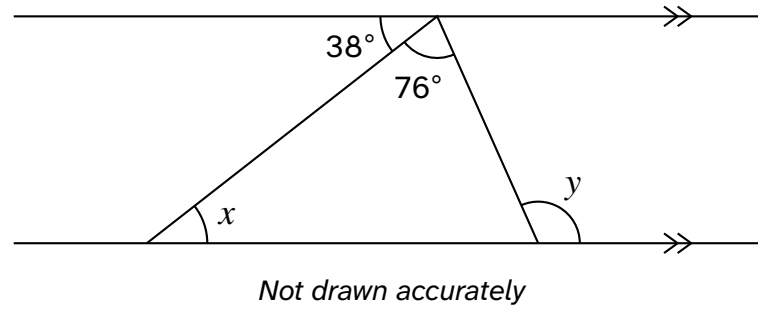
Owen gets £75 more than Grace.

How much was the raffle prize?

[3 marks]

Answer £ _____

- 15 The diagram shows two parallel lines and a triangle.



Is y three times x ?

Tick a box.

Show working to support your answer.

[3 marks]

☐ Yes

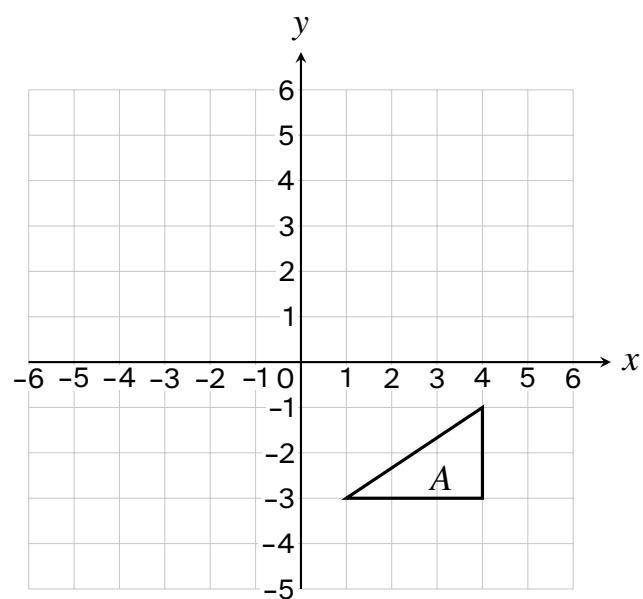
☐ No

- 16 Solve $5(x - 4) = 2x + 13$

[3 marks]

$x =$ _____

- 17 Triangle A is drawn on the grid.



Translate triangle A by the vector $\begin{pmatrix} -5 \\ 4 \end{pmatrix}$

[2 marks]

- 18** (a) Round each number to 1 significant figure to work out an estimate for

$$\frac{83 \times 4.12}{0.37}$$

You must show your working.

[3 marks]

Answer _____

- (b) Is your answer to part (a) an underestimate or an overestimate?

Tick a box.

Give a reason for your answer.

[1 mark]

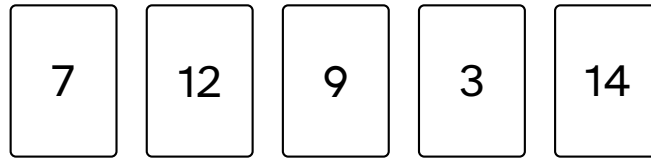
☐

Underestimate

☐

Overestimate

19 Here are five number cards.



Dev takes away one of the cards.

He puts a card with the number 22 in its place.

The mean of the five numbers increases by 2

Which card did Dev take away?

You must show your working.

[3 marks]

Answer _____

20 Martha hires a canal boat for the day.

She will travel from the marina to a village 14 km along the canal, and then back to the marina.

- The boat travels at an average speed of 6 km/h.
- Martha leaves the marina at 10:15 am.
- She will stop at the village for 1 hour 20 minutes.
- The boat must be back at the marina by 4 pm.

Will Martha get the boat back to the marina in time?

You must show your working.

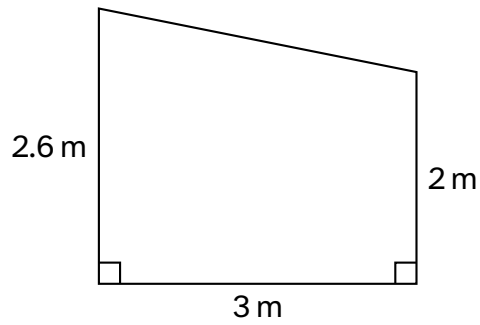
Tick a box.

[5 marks]

☐ Yes

☐ No

- 21** The diagram shows the end wall of a shed.



Not drawn accurately

Work out the area of the wall.

[3 marks]

Answer _____ m²

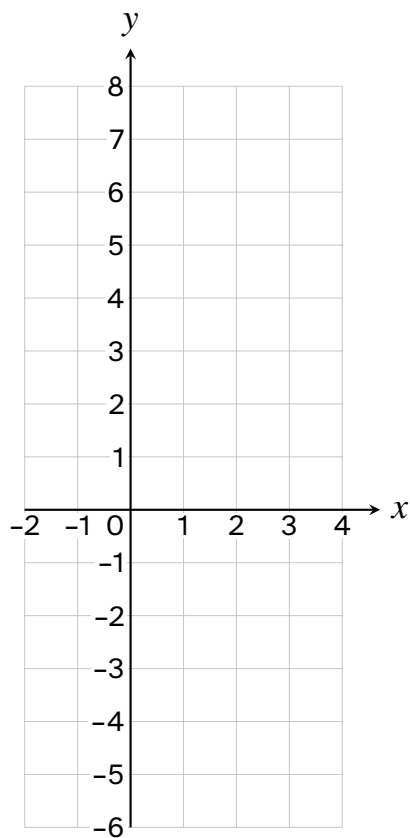
- 22** Work out $3\frac{5}{6} + 1\frac{3}{4}$

Give your answer as a mixed number.

[3 marks]

Answer _____

- 23** (a) On the grid, draw the graph of $y = 4 - 3x$ for values of x from -1 to 3



[3 marks]

- (b) The point $(k, -11)$ is on the line $y = 4 - 3x$

Work out the value of k .

[1 mark]

$k =$ _____

24 Work out the value of $\frac{5^3 \times 5^4}{5^9}$

Give your answer as a fraction.

[2 marks]

Answer _____

25 Circle the value of $\tan 45^\circ$

[1 mark]

0

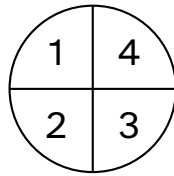
$\frac{1}{2}$

1

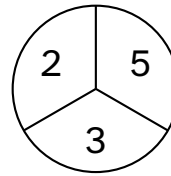
45

26 Here are two fair spinners.

The number on Spinner A is multiplied by the number on Spinner B to get a score.



Spinner A



Spinner B

Spinner A				
×	1	2	3	4
2	2		6	
3		6		12
5	5			20

(a) Complete the table to show all the possible scores.

[2 marks]

(b) Hana and Tom play a game with the two spinners.

Hana wins if the score is an **odd** number.

Tom wins if the score is an **even number greater than 6**

If the score is any other number, nobody wins.

Hana says,

“I am more likely to win than Tom, because there are more odd numbers than even numbers on the spinners.”

Is Hana correct?

Tick a box.

Show working to support your answer.

[2 marks]

☐ Yes

☐ No

- 27** (a) Write 4.06×10^{-3} as an ordinary number.

[1 mark]

Answer _____

- (b) A craft shop sells tubs of glass beads.

Each bead has a mass of 8×10^{-2} grams.

A tub contains 7×10^3 beads.

Work out the total mass of the beads in a tub.

Give your answer in standard form.

[2 marks]

Answer _____ grams

28 (a) Factorise $x^2 + 3x - 28$

[2 marks]

Answer _____

(b) Hence, solve $x^2 + 3x - 28 = 0$

[1 mark]

$x =$ _____ or $x =$ _____

END OF QUESTIONS

Formulae Sheet

For AQA GCSE Mathematics (8300) • Foundation Tier

Perimeter, area and volume

Where a and b are the lengths of the parallel sides and h is their perpendicular separation:

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

Volume of a prism = area of cross section $\times$ length

Where r is the radius and d is the diameter:

$$\text{Circumference of a circle} = 2\pi r = \pi d$$

$$\text{Area of a circle} = \pi r^2$$

Pythagoras' Theorem and Trigonometry

In any right-angled triangle where a , b and c are the lengths of the sides and c is the hypotenuse:

$$a^2 + b^2 = c^2$$

In any right-angled triangle ABC where a , b and c are the lengths of the sides and c is the hypotenuse:

$$\sin A = \frac{a}{c} \quad \cos A = \frac{b}{c} \quad \tan A = \frac{a}{b}$$

Compound Interest

Where P is the principal amount, r is the interest rate over a given period and n is the number of times that the interest is compounded:

$$\text{Total accrued} = P \left(1 + \frac{r}{100} \right)^n$$

Probability

Where $P(A)$ is the probability of outcome A and $P(B)$ is the probability of outcome B :

$$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$$