

Teach Me Maths

Please write clearly in block capitals.

Name _____

Date _____

GCSE MATHEMATICS

F

Foundation Tier • Paper 1 (Non-Calculator)

Mock Set B

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) Work out the value of 4^3

[1 mark]

Answer _____

- (b) Write down the value of $\sqrt{121}$

[1 mark]

Answer _____

- (c) Write one million as a power of 10

[1 mark]

Answer _____

- 2** (a) Complete the statement.

386 centimetres = _____ metres

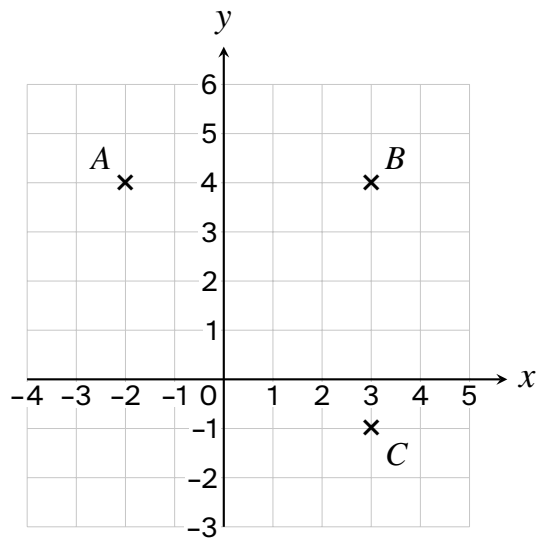
[1 mark]

- (b) Complete the statement.

$2\frac{3}{4}$ hours = _____ minutes

[1 mark]

- 3** Points A , B and C are shown on the grid.



- (a) Write down the coordinates of A .

[1 mark]

Answer (_____ , _____)

- (b) $ABCD$ is a square.

Plot the point D on the grid.

Mark it with a cross (x).

[1 mark]

- 4** (a) Work out -8×5

[1 mark]

Answer _____

- (b) Work out $-3 - (-9)$

[1 mark]

Answer _____

5 Rachel organises a trip to see a show for her drama club.

- 38 people go on the trip.
- Each ticket costs £24
- The coach costs £165 altogether.

Work out the total cost of the trip.

[3 marks]

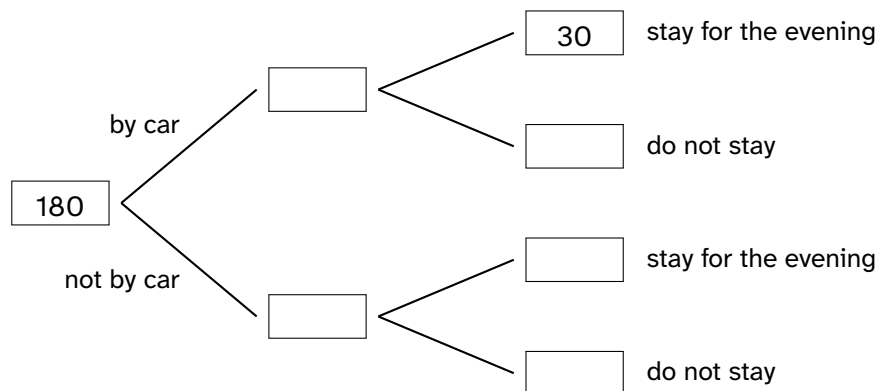
Answer £ _____

6 180 people visit a county show.

- $\frac{2}{5}$ of the people come by car.
- 75 people in total stay for the evening.

Some information is shown on the frequency tree.

(a) Complete the frequency tree.



[2 marks]

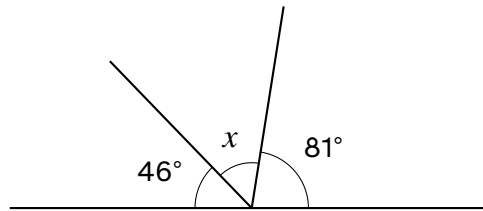
(b) What fraction of the people who come by car stay for the evening?

Give your answer in its simplest form.

[2 marks]

Answer _____

- 7 (a) Here are three angles on a straight line.



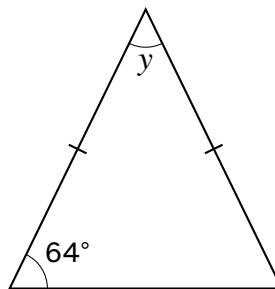
Not drawn accurately

Work out the value of x .

[1 mark]

$x =$ _____ degrees

- (b) Here is an isosceles triangle.



Not drawn accurately

Work out the value of y .

[2 marks]

$y =$ _____ degrees

8 You are given that $34 \times 56 = 1904$

Use this to answer the questions.

(a) Work out 3.4×56

[1 mark]

Answer _____

(b) Work out $1904 \div 56$

[1 mark]

Answer _____

(c) Jenna says,

$$“3.4 \times 0.56 = 19.04”$$

Is Jenna correct?

Tick a box.

Give a reason for your answer.

[1 mark]

☐ Yes

☐ No

- 9 Alfie and Eilidh play darts at a youth club.

Here are Alfie's scores for 7 turns.

Alfie's scores	45	60	26	81	57	60	38
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- (a) Work out the median and the range of Alfie's scores.

[2 marks]

Median _____ Range _____

- (b) Eilidh also throws darts for 7 turns.

The median of her scores is 52

The range of her scores is 31

Eilidh says,

“My scores were more consistent than Alfie's scores.”

Is Eilidh correct?

Tick a box.

Give a reason for your answer.

[1 mark]

☐ Yes ☐ No

10 A gym has two ways of paying.

Pay as you go

£6.50 per visit

Monthly plan

£20 per month

plus £3 per visit

Next month, Dmitri is going to go to the gym twice a week for 4 weeks.

Which way of paying is cheaper for Dmitri?

You must show your working.

Tick a box.

[3 marks]

☐

Pay as you go

☐

Monthly plan

11 (a) Expand $7(2p - 3)$

[1 mark]

Answer _____

(b) Factorise fully $12y + 18$

[1 mark]

Answer _____

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

[2 marks]

Answer _____

12 (a) Kavya plants a hanging basket with

15 red flowers, 24 white flowers and 9 purple flowers.

Write the ratio red : white : purple in its simplest form.

[1 mark]

Answer _____

(b) In a different hanging basket,

number of trailing plants : number of upright plants = 4:7

What fraction of the plants in this basket are trailing plants?

[1 mark]

Answer _____

13 A spinner at a school fair can land on red, blue, green or yellow.

The spinner is biased.

The table shows some of the probabilities.

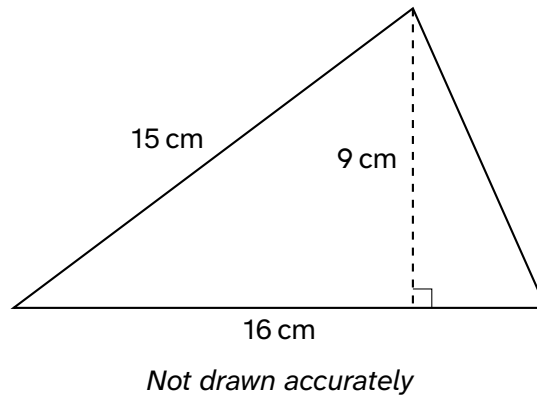
The probability that the spinner lands on yellow is **twice** the probability that it lands on green.

Complete the table.

Colour	Red	Blue	Green	Yellow
Probability	0.35	0.11		

[3 marks]

14 Here is a triangle.



(a) Work out the area of the triangle.

[2 marks]

Answer _____ cm^2

(b) A rectangle has the same area as the triangle.

The width of the rectangle is 6 cm.

Work out the perimeter of the rectangle.

[2 marks]

Answer _____ cm

15 In a choir,

number of children : number of adults = 7:4

15 more adults join the choir.

Now there are the same number of children and adults in the choir.

How many people were in the choir **before** the 15 adults joined?

[3 marks]

Answer _____

16 A shop has a sale on bikes.

- In the sale, all prices are reduced by 25%
- On Saturday only, the sale prices are reduced by a further 10%

The original price of a bike is £560

Stefan says,

“On Saturday, the price of the bike is 35% less than its original price.”

Is Stefan correct?

You must show your working.

Tick a box.

[3 marks]

☐ Yes

☐ No

17 Carys goes on a school ski trip to France.

Before the trip, she changes £320 into euros (€).

The exchange rate is £1 = €1.15

On the trip, Carys spends €283

When she gets home, she changes the euros she has left back into pounds.

The exchange rate is now £1 = €1.25

How many pounds does she get?

[4 marks]

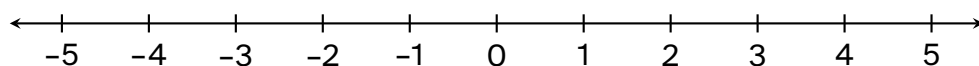
Answer £ _____

18 (a) Solve $4x - 3 \leq 7$

[2 marks]

Answer _____

(b) Show your answer to part (a) on the number line.



[1 mark]

19 Here are the first four terms of a linear sequence.

53 47 41 35

(a) Work out an expression for the n th term of the sequence.

[2 marks]

Answer _____

(b) Is -94 a term in the sequence?

You must show your working.

Tick a box.

[2 marks]

☐ Yes

☐ No

20 Paige is making bunting.

She has a length of fabric that is $9\frac{1}{2}$ metres long.

She cuts the fabric into strips.

Each strip is $1\frac{1}{4}$ metres long.

Work out the greatest number of strips she can cut.

[3 marks]

Answer _____

21 $\mathbf{a} = \begin{pmatrix} -2 \\ 5 \end{pmatrix}$ $\mathbf{b} = \begin{pmatrix} 4 \\ -3 \end{pmatrix}$

Work out $3\mathbf{a} + 2\mathbf{b}$ as a column vector.

[2 marks]

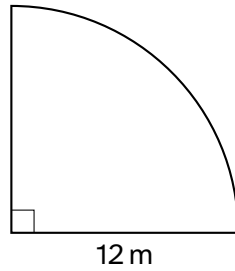
Answer $\begin{pmatrix} \\ \end{pmatrix}$

22 Write down the value of $\sin 30^\circ$

[1 mark]

Answer _____

- 23** A flower bed is a quarter of a circle with radius 12 m.



Not drawn accurately

- (a) Work out the area of the flower bed.

Give your answer in terms of π .

[2 marks]

Answer _____ m^2

- (b) Shona wants to put edging all the way around the flower bed.

She has 41 m of edging.

Does she have enough edging?

You must show your working.

Tick a box.

[2 marks]

☐ Yes

☐ No

24 (a) Simplify $x^5 \times x^4$

[1 mark]

Answer _____

(b) Simplify $(y^3)^4$

[1 mark]

Answer _____

(c) Sami says,

$$w^{10} \div w^2 = w^5$$

Is Sami correct?

Tick a box.

Give a reason for your answer.

[1 mark]

☐ Yes

☐ No

25 (a) Write 792 as a product of prime factors.

Give your answer in index form.

[2 marks]

Answer _____

(b) Work out the highest common factor (HCF) of 792 and 180

[2 marks]

Answer _____

26 Wei expands and simplifies $(x - 4)(x + 9)$

Here is his working.

$$\begin{aligned}(x - 4)(x + 9) &= x^2 + 9x - 4x + 36 \\ &= x^2 + 5x + 36\end{aligned}$$

Wei's working has one mistake.

Describe his mistake and write down the correct answer.

[2 marks]

27 A team of 8 volunteers can paint a fence in 9 hours.

All the volunteers work at the same rate.

(a) The fence needs to be painted in 6 hours.

How many **more** volunteers are needed?

[2 marks]

Answer _____

(b) In fact, the extra volunteers each work more slowly than the original 8 volunteers.

What does this mean about the number of extra volunteers needed to paint the fence in 6 hours?

Tick **one** box.

[1 mark]

- ☐ It is fewer than the answer to part (a)
- ☐ It is the same as the answer to part (a)
- ☐ It is more than the answer to part (a)
- ☐ It is not possible to tell

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 :

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