

Teach Me Maths

Please write clearly in block capitals.

Name _____

Date _____

GCSE MATHEMATICS

F

Foundation Tier • Paper 3 (Calculator)

Mock Set B

For AQA GCSE Mathematics (8300)

Time allowed: 1 hour 30 minutes

Materials

For this paper you must have:

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

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.

For the marker
TOTAL (out of 80)

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 two hundred and six thousand and fifty in figures.

[1 mark]

Answer _____

- (b) Write a number in the box to make this statement correct.

$$4.2 < \boxed{} < 4.25$$

[1 mark]

- 2 (a) Here are the first four terms of a sequence.

62 55 48 41

Write down the next term.

[1 mark]

Answer _____

- (b) Here are the first four terms of a different sequence.

96 48 24 12

Write down the term-to-term rule.

[1 mark]

Answer _____

- (c) The term-to-term rule of another sequence is

multiply by 3 then subtract 4

The 2nd term of the sequence is 23

Work out the 1st term.

[1 mark]

Answer _____

3 Work out $\frac{3}{8}$ of £62.80

[2 marks]

Answer £ _____

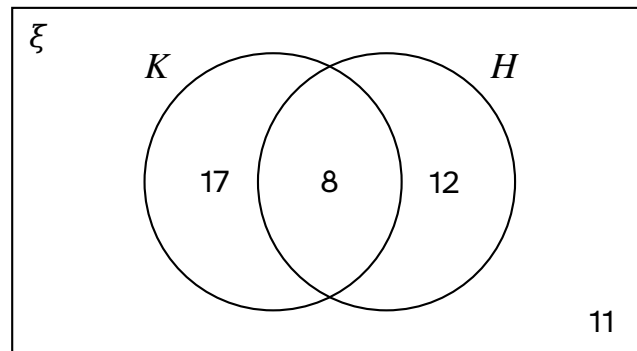
- 4 A holiday park offers two activities, kayaking and horse riding.

The Venn diagram shows information about the activities that 48 people did during their stay.

ξ = the 48 people

K = people who went kayaking

H = people who went horse riding



- (a) How many people went kayaking **and** horse riding?

[1 mark]

Answer _____

- (b) How many people did **not** go horse riding?

[1 mark]

Answer _____

- (c) One of the people is chosen at random.

Work out the probability that this person did **exactly one** of the two activities.

[2 marks]

Answer _____

- 5** (a) Round 0.063 71 to 2 significant figures.

[1 mark]

Answer _____

- (b) The population of a city is 846 520

Round 846 520 to 1 significant figure.

[1 mark]

Answer _____

- (c) A 7-day bus ticket in the city costs £17.30

Work out the cost per day.

Give your answer to the nearest penny.

[1 mark]

Answer £ _____

- 6 Three shops sell the same type of tennis ball.

Shop A	Shop B	Shop C
Tube of 4 balls £5.20 per tube	Box of 18 balls £22.50 per box	Tube of 3 balls £5.70 per tube Buy 2 tubes, get 1 more tube free

At which shop is the cost of one tennis ball the cheapest?

Tick one box.

You must show your working.

[3 marks]

☐ Shop A

☐ Shop B

☐ Shop C

- 7 Work out

$$\frac{\sqrt{58.3} + 2.6^3}{4.1 \times 1.7}$$

Give your answer to 2 decimal places.

[2 marks]

Answer _____

8 Lola has a rectangular rug.

The area of the rug is 4.25 m^2

The length of the rug is 2.5 m

She wants to sew a fringe along all four edges of the rug.

She has 8.5 m of fringe.

Does Lola have enough fringe?

Tick a box.

Show working to support your answer.

[3 marks]

☐ Yes

☐ No

9 A shop sells bags of ice.

(a) 5 bags of ice cost £6.45

Work out the cost of 12 bags of ice.

[2 marks]

Answer £ _____

(b) Ice is also sold in large bags.

Each large bag holds 4.5 kg of ice.

Each large bag costs £3.35

Toby needs 40 kg of ice for a party.

Work out the cost of the large bags he needs to buy.

[2 marks]

Answer £ _____

- 10 (a) Write a **different prime number** in each box.

$$\boxed{} + \boxed{} = 36$$

[1 mark]

- (b) Write a **square number** in the first box and a **cube number** in the second box.

$$\boxed{} + \boxed{} = 33$$

[1 mark]

- (c) Write a **multiple of 6** in the first box and a **multiple of 8** in the second box.

Both numbers must be greater than 50

$$\boxed{} - \boxed{} = 10$$

[2 marks]

- 11** 40 teams took part in an escape room challenge.

The table shows information about the times the teams took to escape.

Time (t minutes)	Frequency
$20 < t \leq 30$	3
$30 < t \leq 40$	9
$40 < t \leq 50$	16
$50 < t \leq 60$	12

- (a) Write down the modal class.

[1 mark]

Answer _____

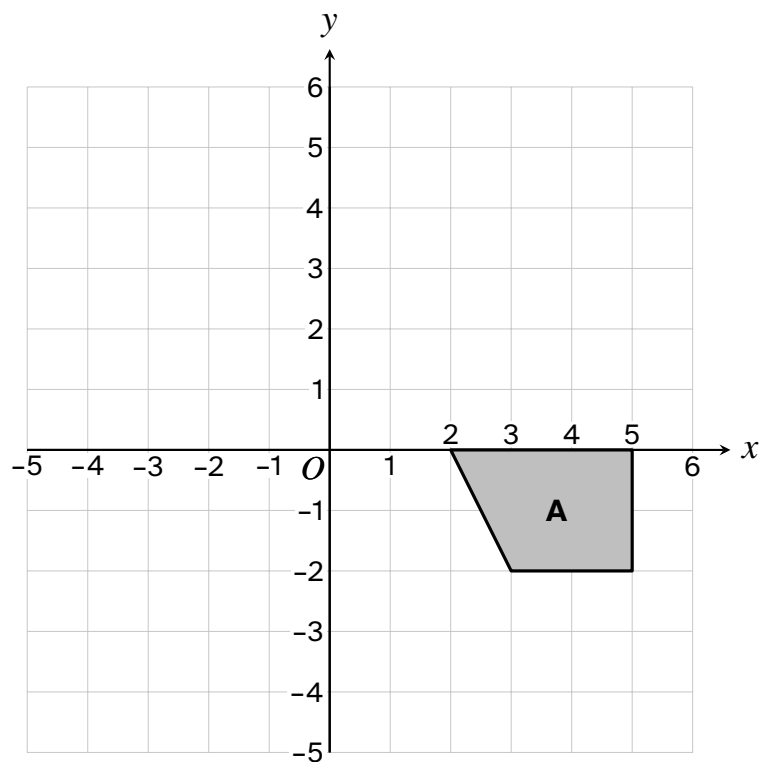
- (b) Work out an estimate of the mean time.

[3 marks]

Answer _____ minutes

12 Shape A is drawn on a coordinate grid.

Rotate shape A 90° anticlockwise about (1, 1)



[2 marks]

13 A school is carrying out a survey about school lunches.

(a) Tick one box in each row to show whether the data is discrete or continuous.

[1 mark]

	Discrete	Continuous
The number of students in each tutor group	☐	☐
The time a student waits in the lunch queue	☐	☐
The mass of a portion of pasta	☐	☐

(b) Nikhil wants to find out what the students at his school think of the school lunches.

The school has students in Years 7 to 11

He asks 40 students in Year 7

Give **one** reason why his sample may not represent the views of the whole school.

[1 mark]

14 Write these fractions in order of size.

Start with the smallest.

$$\frac{2}{3} \qquad \frac{9}{7} \qquad \frac{5}{8} \qquad \frac{13}{20}$$

[2 marks]

Answer _____ , _____ , _____ , _____

15 Harvey, Lewis and Felix raise money for a charity.

Lewis raises £18 more than Harvey.

Felix raises twice as much as Lewis.

Altogether they raise £350

Work out how much money each of them raised.

[4 marks]

Harvey £ _____

Lewis £ _____

Felix £ _____

16 The area of a classroom display board is 1.8 m^2

Simran says,

‘There are 100 cm in a metre, so the area of the board is 180 cm^2 ’

Is Simran correct?

Tick a box.

Show working to support your answer.

[2 marks]

☐ Yes

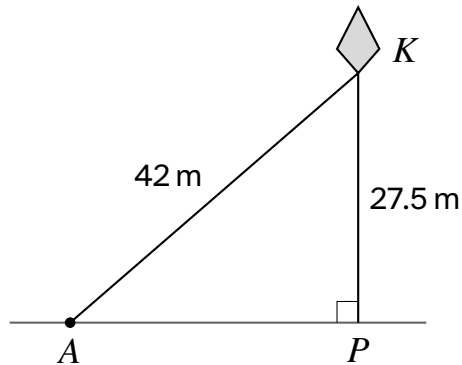
☐ No

17 Esther is flying a kite, K .

The string of the kite is tied to a peg at A on horizontal ground.

The string is a straight line 42 m long.

The kite is 27.5 m vertically above the point P on the ground.



Not drawn accurately

Work out the distance AP .

Give your answer to 1 decimal place.

[3 marks]

Answer _____ m

18 (a) Here is a statement.

$$5(y + 3) \equiv 5y + 15$$

Tick **one** box to show what this is.

[1 mark]

- ☐ Equation
- ☐ Expression
- ☐ Formula
- ☐ Identity

(b) Show that

$$4(3x - 2) - 5(x - 3) \equiv 7(x + 1)$$

[2 marks]

19 Aaliyah buys a used electric car for £21 400

(a) In this part, assume the value of the car decreases by 13% each year.

Work out the value of the car after 3 years.

[3 marks]

Answer £ _____

(b) In fact, the value of the car decreases by 20% in the first year.

It then decreases by 13% in each of the next two years.

What does this mean about the value of the car after 3 years?

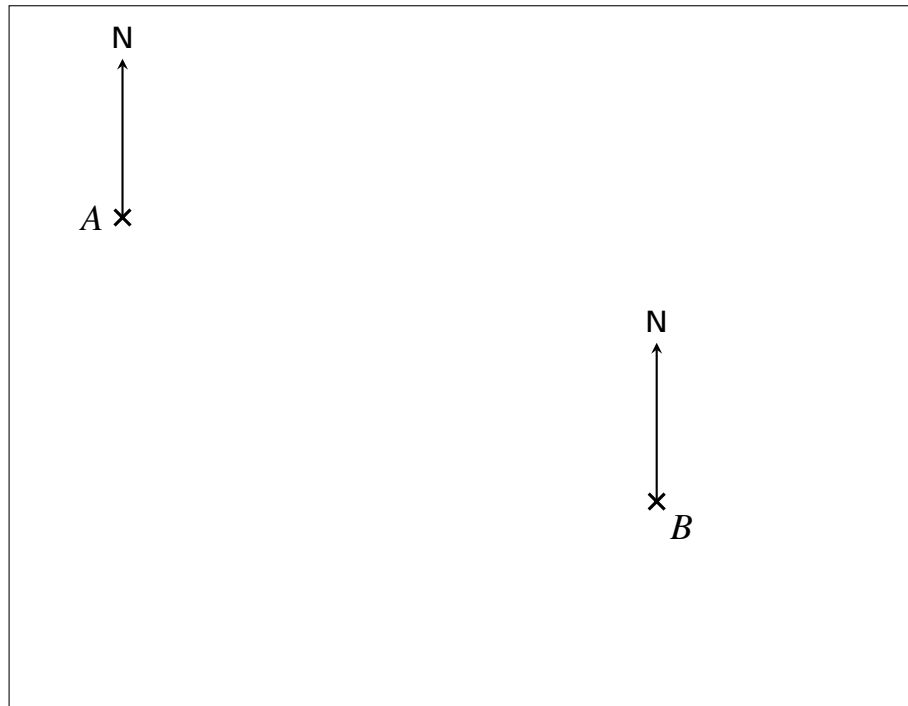
Tick **one** box.

[1 mark]

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

20 The scale drawing shows two checkpoints, A and B , on an orienteering course.

Scale: 1 cm represents 500 m



(a) Measure the bearing of B from A .

[1 mark]

Answer _____ degrees

(b) Checkpoint C is 3 km from B on a bearing of 335°

Mark the position of C with a cross ($\times$).

[2 marks]

21 Factorise $x^2 - 144$

[2 marks]

Answer _____

- 22** (a) Write down the gradient of the line $y = 4 - 3x$

[1 mark]

Answer _____

- (b) Which of these lines is parallel to the line $y = 2x + 5$?

Circle your answer.

[1 mark]

$y = 5x + 2$

$y = -2x + 5$

$2y = 4x + 1$

$y = \frac{1}{2}x - 5$

- 23** Elena and Ibrahim each throw the same paper cup in the air many times.

They record whether the cup lands on its side.

Elena throws the cup 40 times. It lands on its side 17 times.

Ibrahim throws the cup 150 times.

For Ibrahim, the relative frequency of the cup landing on its side is 0.62

- (a) How many more times did the cup land on its side for Ibrahim than for Elena?

[2 marks]

Answer _____

- (b) Whose results give the better estimate of the probability that the cup lands on its side?

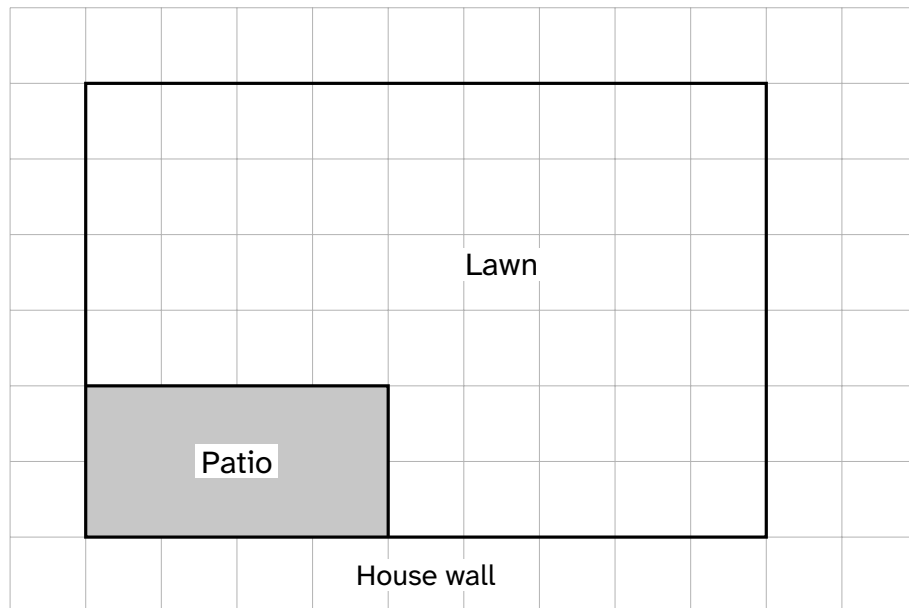
Give a reason for your answer.

[1 mark]

24 The plan shows Marcus's garden, drawn on a centimetre grid.

The garden is a rectangle. Part of the garden is a patio. The rest is lawn.

Scale 1 : 200



Marcus is going to cover the whole lawn with new turf.

Turf prices

£5.60 per m^2 for the first 100 m^2

£3.90 per m^2 for each m^2 after the first 100 m^2

Work out the total cost of the turf.

[5 marks]

Answer £ _____

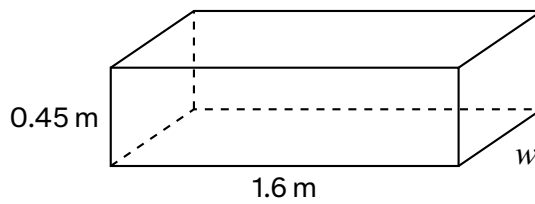
25 A stone bench is a solid cuboid.

It stands on horizontal ground.

The bench exerts a force of 2880 newtons (N) on the ground.

The pressure on the ground is 4500 N/m^2

$$\text{pressure} = \frac{\text{force}}{\text{area}}$$



Not drawn accurately

Work out the width, w , of the bench.

Give your answer in centimetres.

[3 marks]

Answer _____ cm

- 26** A plank of wood is 4.7 m long, correct to the nearest 10 cm.
Gus is going to cut pieces of length 52 cm from the plank.
Assume no wood is wasted when he cuts it.

Gus says,

‘I can definitely cut 9 pieces from the plank.’

Show that Gus is **not** correct.

[3 marks]

27 A chef makes a salad dressing by mixing olive oil and vinegar.

She uses 450 cm^3 of olive oil and 0.303 kg of vinegar.

The density of the olive oil is 0.92 g/cm^3

The density of the vinegar is 1.01 g/cm^3

The volume of the dressing is the volume of the oil plus the volume of the vinegar.

$$\text{density} = \frac{\text{mass}}{\text{volume}}$$

Work out the density of the salad dressing.

Give your answer to 2 decimal places.

[3 marks]

Answer _____ g/cm^3

END OF QUESTIONS

Formulae Sheet

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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 :

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