

Teach Me Maths

Please write clearly in block capitals.

Name _____

Date _____

GCSE MATHEMATICS

F

Foundation Tier • Paper 3 (Calculator)

Mock Set A

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** Here is some information about a music festival.

Number of people at the festival on Friday	6847
Distance from the car park to the main stage	1.258 km
Total number of people at the festival over the weekend	23 961

- (a) Round the number of people on Friday to the nearest hundred.

[1 mark]

Answer _____

- (b) Round the distance from the car park to the main stage to 1 decimal place.

[1 mark]

Answer _____ km

- (c) Round the total number of people over the weekend to 2 significant figures.

[1 mark]

Answer _____

2 (a) Work out $\frac{5}{8}$ of 344

[1 mark]

Answer _____

(b) Write 0.84 as a fraction in its simplest form.

[1 mark]

Answer _____

3 Work out $2.4^3 - \sqrt{12.25}$

Write down all the numbers on your calculator display.

[2 marks]

Answer _____

4 (a) Solve $\frac{y}{8} = 7$

[1 mark]

$y =$ _____

(b) Solve $6w - 11 = 37$

[2 marks]

$w =$ _____

- 5 Ayesha is making muffins for a school bake sale.

Here is her recipe.

Muffins (makes 12)

270 g plain flour

120 g sugar

180 ml milk

- (a) Work out the amount of plain flour she needs to make 20 muffins.

[2 marks]

Answer _____ g

- (b) Ayesha has 500 ml of milk.

She has plenty of the other ingredients.

Work out the greatest number of muffins she can make.

[2 marks]

Answer _____

6 A café sells a meal deal.

Each meal deal is one main and one side.

Main	Side
Burger (B)	Chips (C)
Wrap (W)	Salad (S)
Jacket potato (J)	Onion rings (O)

(a) List all the possible meal deals.

One has been done for you.

BC

[2 marks]

(b) What fraction of the possible meal deals include Chips?

[1 mark]

Answer _____

7 Here is some information about Olu's electricity bill.

Meter reading at the start	24 318 units
Meter reading at the end	24 968 units
Number of days	91
Standing charge	48p per day
Price of electricity	26p per unit

VAT at 5% is added to the total of the standing charge and the cost of the electricity used.

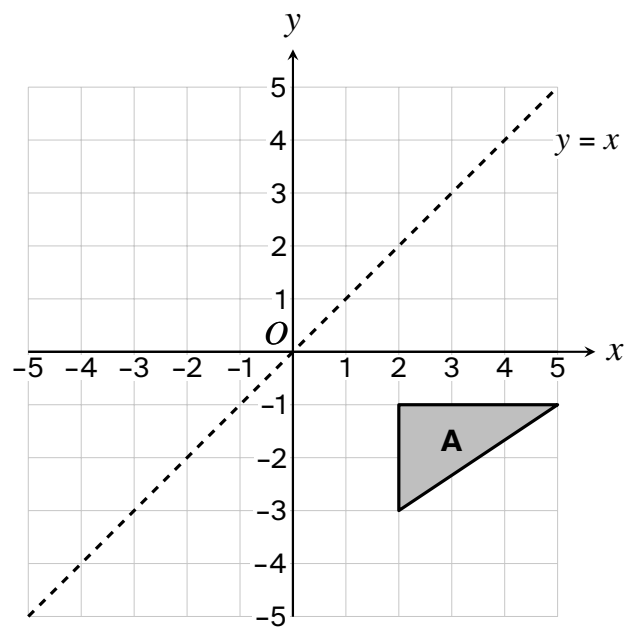
Work out Olu's total bill.

[4 marks]

Answer £ _____

- 8 Shape A is drawn on a coordinate grid.

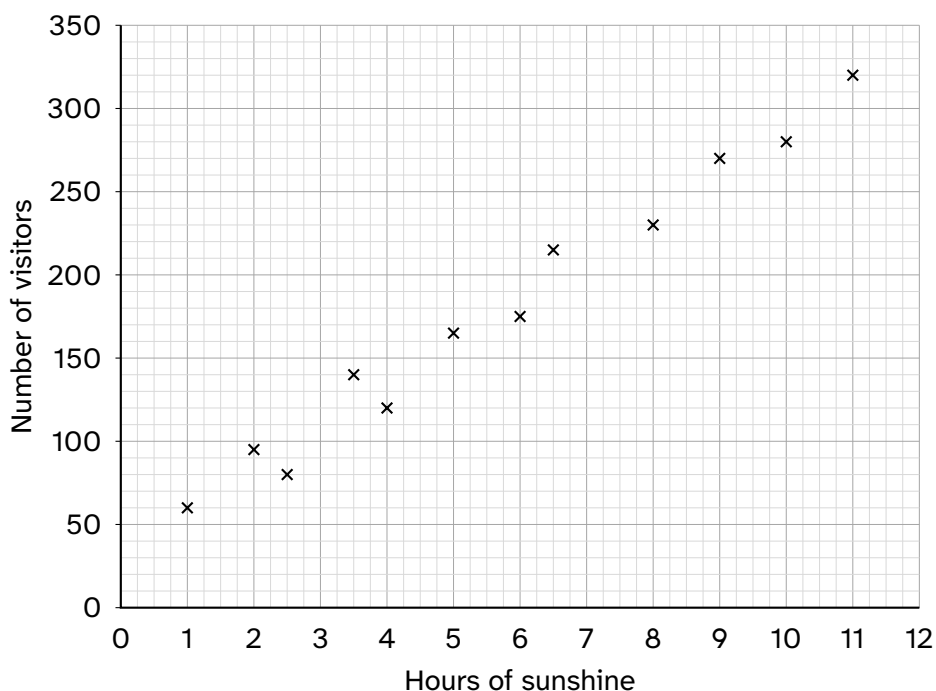
Reflect shape A in the line $y = x$



[2 marks]

- 9 A lido is an outdoor swimming pool.

The scatter graph shows the number of hours of sunshine and the number of visitors to a lido on 12 days.



- (a) Describe the type of correlation shown.

[1 mark]

Answer _____

- (b) On a day with 7.5 hours of sunshine, the lido did not record the number of visitors.

By drawing a line of best fit, estimate the number of visitors on this day.

[2 marks]

Answer _____

- (c) Femi uses the line of best fit to estimate the number of visitors on a day with 16 hours of sunshine.

Why might his estimate not be reliable?

[1 mark]

10 The exchange rate is £1 = €1.16

(a) Lucy changes £250 into euros.

How many euros does she get?

[1 mark]

Answer € _____

(b) At the end of her holiday in Italy, Lucy has €145 left.

She is going on to the USA, so she changes the €145 into US dollars (\$).

The exchange rate is £1 = \$1.27

How many dollars does she get?

[3 marks]

Answer \$ _____

- 11** (a) On Saturday, Ella spends 45 minutes on homework and 2 hours gaming.

Write the ratio time on homework : time gaming in its simplest form.

[2 marks]

Answer _____ :

- (b) On Sunday, the ratio time on homework : time gaming is 5 : 17

Ella says,

‘On Sunday I spent more than three times as long gaming as on homework.’

Is Ella correct?

Tick a box.

Give a reason for your answer.

[1 mark]

☐

Yes

☐

No

12 Here is a formula used in science.

$$v = u + at$$

Kai uses the formula to work out v when $u = 12.5$, $a = -3.2$ and $t = 2.5$

Here is his working.

$$\begin{aligned} v &= 12.5 + (-3.2) \times 2.5 \\ &= 9.3 \times 2.5 \\ &= 23.25 \end{aligned}$$

(a) What mistake has Kai made?

[1 mark]

(b) Work out the correct value of v

[1 mark]

$v =$ _____

- 13** 140 students in Year 10 and Year 11 each choose one after-school club: Art, Coding or Sport.

64 of the students are in Year 10.

$\frac{3}{8}$ of the Year 10 students choose Art.

38 students altogether choose Art.

Some more information is shown in the table.

- (a) Complete the two-way table.

	Art	Coding	Sport	Total
Year 10			21	
Year 11		30		
Total				140

[3 marks]

- (b) One of the 140 students is chosen at random.

Ravi says,

‘There are three clubs, so the probability that the student chose Coding is $\frac{1}{3}$ ’

Is Ravi correct?

Tick a box.

Show working to support your answer.

[2 marks]

☐

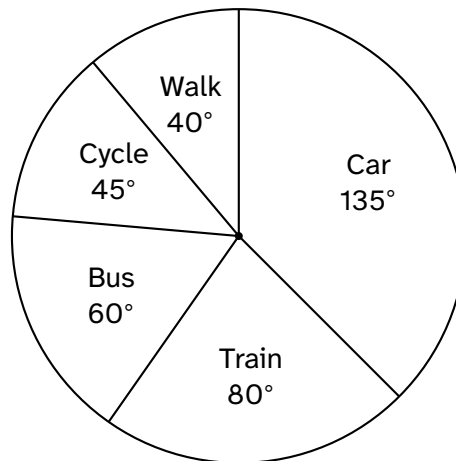
Yes

☐

No

- 14** Some people were asked how they travel to work.

The pie chart shows the results.



Not drawn accurately

27 people cycle.

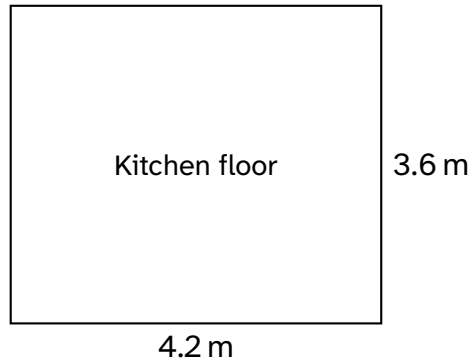
How many people travel to work by car or by train?

[3 marks]

Answer _____

- 15** Maya wants to cover a rectangular kitchen floor with square tiles.
Each tile is 30 cm by 30 cm.
Tiles are sold in boxes of 10
Each box costs £22.40

15% off the total price when you buy more than 12 boxes



Not drawn accurately

Work out the total cost of the tiles Maya needs.
You must show your working.

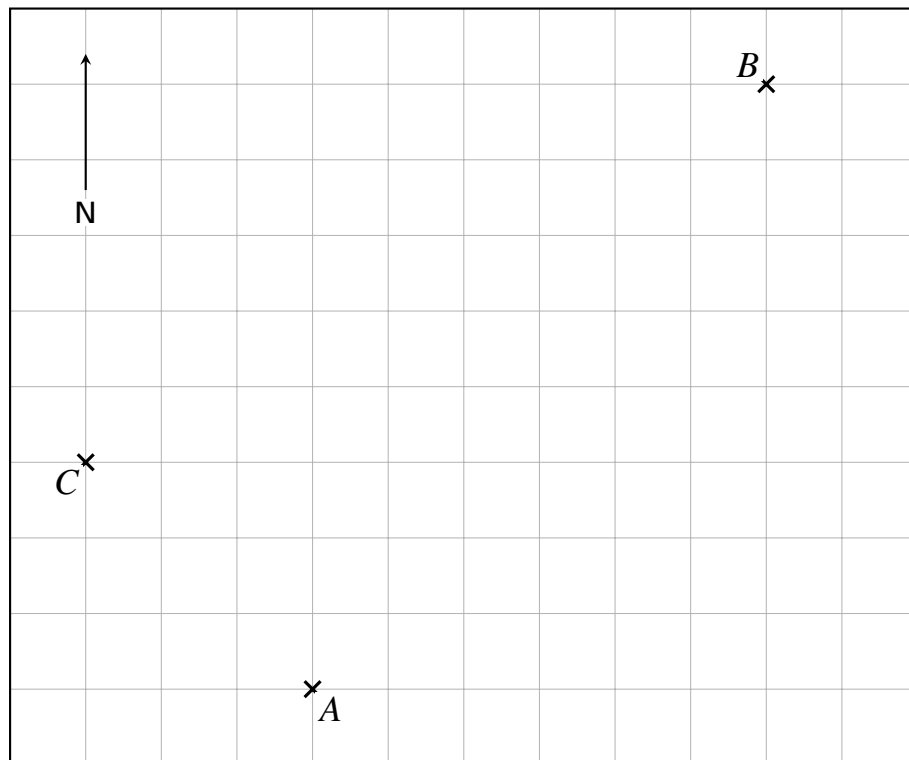
[5 marks]

Answer £ _____

16 Here is a map on a centimetre grid.

It shows two villages, *A* and *B*, and a church, *C*.

Scale 1 : 25 000



(a) Work out the real distance from village *A* to village *B*.

Give your answer in kilometres.

[3 marks]

Answer _____ km

(b) Lena walks in a straight line from village *A* to the church, *C*.

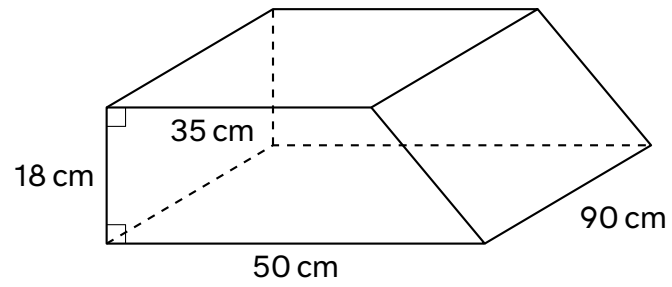
In which compass direction does she walk?

[1 mark]

Answer _____

- 17 A concrete step is a prism.

The cross-section of the step is a trapezium.



Not drawn accurately

Show that the volume of the step is less than 0.07 m^3

[4 marks]

18 Callum makes $2\frac{3}{4}$ litres of smoothie.

He pours the smoothie into glasses.

Each glass holds $\frac{1}{3}$ of a litre.

He fills as many glasses as he can.

How many glasses does he fill, and how much smoothie is left over?

Give the amount left over as a fraction of a litre.

[4 marks]

Glasses filled _____

Left over _____ litre

19 There are only white, red and black cars in a car park.

$\frac{2}{5}$ of the cars are white.

The rest of the cars are red or black.

red cars : black cars = 4 : 5

There are 45 black cars.

How many white cars are there?

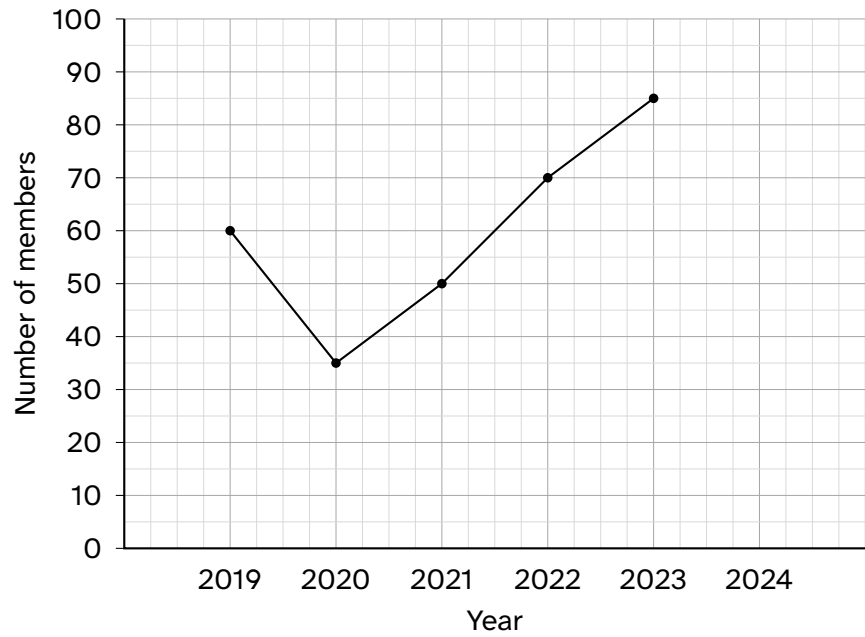
[4 marks]

Answer _____

20 The table shows the number of members of a park-run club each year from 2019 to 2024.

Year	2019	2020	2021	2022	2023	2024
Number of members	60	35	50	70	85	95

The time-series graph shows some of this information.



(a) Complete the time-series graph.

[2 marks]

(b) Describe the trend in the number of members from 2020 to 2024.

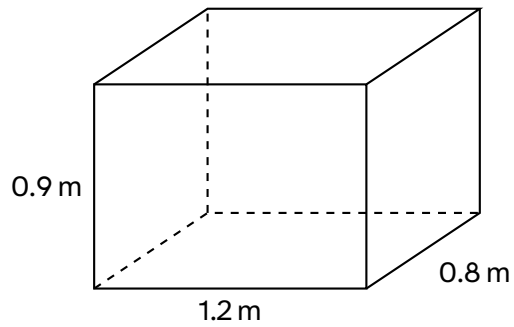
[1 mark]

21 A crate is a cuboid.

It rests on a floor as shown.

The crate exerts a force of 1800 newtons (N) on the floor.

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



Not drawn accurately

Work out the pressure on the floor.

Give your answer in N/m^2

[2 marks]

Answer _____ N/m^2

22 Solve the simultaneous equations

$$6x + 5y = 19$$

$$2x + 5y = 3$$

[3 marks]

$x =$ _____ $y =$ _____

23 A farmer uses combine harvesters to harvest a field of wheat.

All the harvesters work at the same rate.

5 harvesters would take 12 hours to harvest the whole field.

The farmer starts harvesting at 7 am with 5 harvesters.

At 9 am, 3 more harvesters join them.

At what time will the field be finished?

You must show your working.

[4 marks]

Answer _____

24 In a sequence, you find the next term by adding together the two terms before it.

The 3rd term is 2

The 4th term is -5

Work out the 1st term.

[3 marks]

Answer _____

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 :

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