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Candidate surname		Other names	
Centre Number		Candidate Number	

Pearson Edexcel Level 1/Level 2 GCSE (9–1)

Wednesday 4 June 2025

Morning (Time: 1 hour 30 minutes)	Paper reference	1MA1/2F
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Mathematics

PAPER 2 (Calculator)

Foundation Tier



You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB or B pencil, eraser, calculator, Formulae Sheet (enclosed). Tracing paper may be used.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- If pencil is used for diagrams/sketches/graphs it must be dark (HB or B).
- **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 be used.**
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

Information

- The total mark for this paper is 80
- 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.
- Try to answer every question.
- Check your answers if you have time at the end

Turn over ►

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.CG Maths.
Worked Solutions


Pearson

Please note that these worked solutions have neither been provided nor approved by Pearson Education and may not necessarily constitute the only possible solutions. Please refer to the original mark schemes for full guidance.

Any writing in blue should be written in the exam.

Anything written in green in a rectangle doesn't have to be written in the exam.

If you find any mistakes or have any requests or suggestions, please send an email to curtis@cgmaths.co.uk

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 Change 3 weeks into days.

$3 \times 7 \leftarrow$ 1 week = 7 days. So multiplying the 3 weeks by 7 converts it to 21 days

21 days

(Total for Question 1 is 1 mark)

2 Simplify $2 \times 3n$

$2 \times 3 = 6$. Writing n next to this means that it is multiplied by n

6n

(Total for Question 2 is 1 mark)

3 Write 0.7 as a percentage.

$0.7 \times 100 \leftarrow$ Any decimal can be converted to a percentage by multiplying it by 100

70%

(Total for Question 3 is 1 mark)

4 Here are some temperatures in $^{\circ}\text{C}$.

-3 5 -6 7 2

Write the temperatures in order.
Start with the lowest temperature.

The more negative a number, the lower it is. The less positive a number, the lower it is

-6, -3, 2, 5, 7

(Total for Question 4 is 1 mark)

5 Write down a sensible metric unit that could be used to measure

(i) the height of a mountain

metres

(1)

(ii) the weight of a button.

grams

(1)

(Total for Question 5 is 2 marks)

6 Four numbers add up to 76

One of the numbers is 13

The other three numbers are each the same number.

Work out the value of each of the other three numbers.

$76 - 13$ ← Subtracting the 13 from the 76 finds that the total of the other three numbers is 63

$63 \div 3$ ← As the other three numbers are equal, dividing their total by 3 finds that each of them is 21

21

(Total for Question 6 is 3 marks)

- 7 Here is a rule to work out the cost of buying a number of floorboards.

$$\text{Cost} = £55 \times \text{number of floorboards}$$

Toby buys a number of floorboards.

The cost is £330

Work out the number of floorboards Toby buys.

$$330 = 55n \quad \leftarrow \text{Substituting the known values into the rule. Let } n \text{ be the number of floorboards}$$

$$n = 330 \div 55 \quad \leftarrow \text{Dividing both sides by 55 eliminates the 55 on the side with } n \text{ and gets } n \text{ on its own}$$

$$n = 6. \text{ } n \text{ was the number of floorboards}$$

6

(Total for Question 7 is 2 marks)

- 8 Here is a list of numbers.

7 14 6 6 8 5 6 10 11 14

- (a) Find the mode.

6 appears more than the other numbers

6

(1)

- (b) Work out the range.

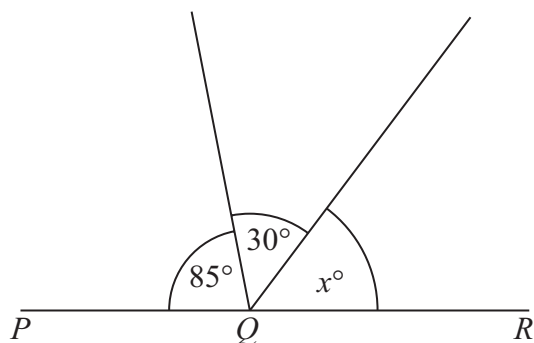
$$14 - 5 \quad \leftarrow \text{Range} = \text{largest} - \text{smallest. The largest is 14 and the smallest is 5}$$

9

(2)

(Total for Question 8 is 3 marks)

9



PQR is a straight line.

(i) Work out the value of x .

$$180 - 85 - 30$$

There are 180° around a point on a straight line.
Subtracting the known angles from 180° leaves x

$$x = \frac{65}{(2)}$$

(ii) Give a reason for your answer.

There are 180° around a point on a straight line

(1)

(Total for Question 9 is 3 marks)

10 20% of cars sold last year were electric cars.

Write down the ratio of

the number of electric cars sold last year to the number of non-electric cars sold last year.

Give your ratio in its simplest form.

$$100 - 20$$

Percentage is out of 100. So subtracting the 20% from 100% finds that 80% of the cars were non-electric cars

$$20 : 80$$

Writing the ratio

Using the calculator, $20/80$ simplifies to $1/4$. So the ratio simplifies to 1 : 4

1 : 4

(Total for Question 10 is 2 marks)

11 Jamie drives his van for 150 minutes.

He stops for a rest.

Jamie then drives for a further 75 minutes.

(a) Show that Jamie drives for less than 4 hours in total.

$$150 + 75$$

Adding the 150 minutes and the 75 minutes finds that Jamie drives for 225 minutes in total

$$225 \div 60 = 3.75$$

1 hour = 60 minutes. So dividing the 225 minutes by 60 converts it to 3.75 hours, which is less than 4 hours

(2)

A car travels for 2 hours at a steady speed of 65 mph.

(b) Work out the distance the car travels.

$$s = \frac{d}{t}$$

Writing a formula triangle for speed, distance, time

$$65 \times 2$$

Covering d in the formula triangle finds that distance = speed $\times$ time

130 miles

(2)

(Total for Question 11 is 4 marks)

- 12 A factory makes mountain bikes and road bikes.
Each bike has disc brakes or rim brakes or caliper brakes.

In June the factory makes a total of 240 bikes. A

102 of the bikes are mountain bikes. B

75 of the 110 bikes with disc brakes are mountain bikes. C

105 bikes have rim brakes. D

20 of the mountain bikes have caliper brakes. E

Use this information to complete the two-way table.

	disc brakes	rim brakes	caliper brakes	Total
mountain bikes	75 C	7 F	20 E	102 B
road bikes	35 G	98 H	5 J	138 K
Total	110 C	105 D	25 I	240 A

F: $102 - 75 - 20 = 7$.
G: $110 - 75 = 35$.
H: $105 - 7 = 98$.
I: $240 - 110 - 105 = 25$.
J: $25 - 20 = 5$.
K: $240 - 102 = 138$

(Total for Question 12 is 3 marks)

- 13 (a) Simplify $n \times n \times n$

n to the power of 3 means 3 ns multiplied together

$$\dots\dots\dots n^3$$

(1)

- (b) Solve $5k - 4 = 26$

$5k = 30$ ← Adding 4 to both sides eliminates the -4 on the left and gets the k term on its own

Dividing both sides by 5 eliminates the 5 on the left and gets k on its own

$$k = \dots\dots\dots 6$$

(2)

(Total for Question 13 is 3 marks)

14 120 students in Year 10 each choose one language to study.

The table below shows information about their choices.

Language	Number of students
French	45
Mandarin	20
Spanish	55

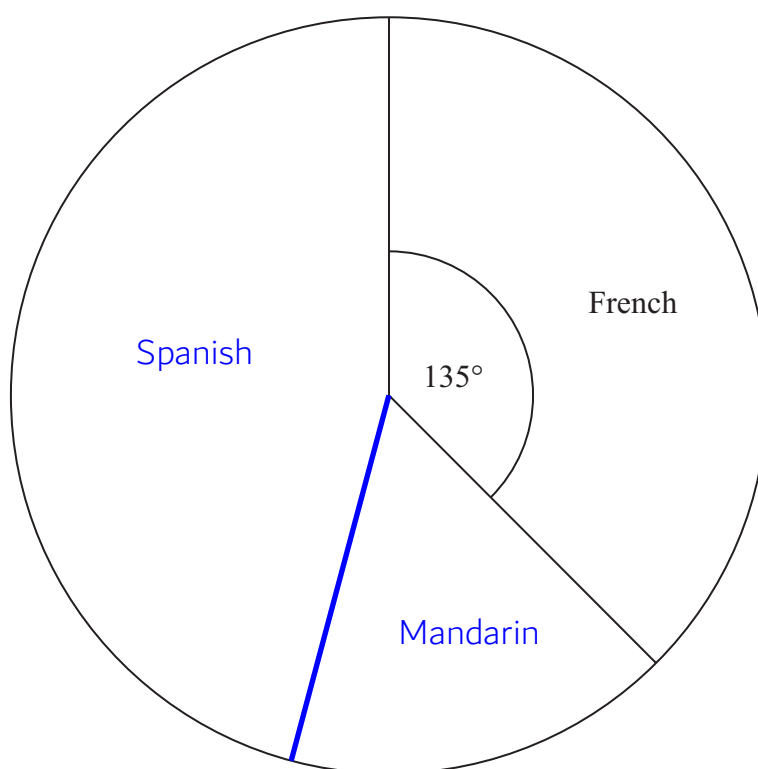
60

Multiplying the 20 students by 3° finds the angle for Mandarin is 60°

(a) Complete the accurate pie chart to show this information.

$360 \div 120 = 3$

Dividing the 360° in total in a pie chart by the 120 students finds that each student is represented by 3°



Drawing a 60° angle for Mandarin. Spanish must be the rest of the pie chart

(3)

In another pie chart the number of students in Year 11 studying French is represented by an angle of 150°

Navi says,

“This means that French was chosen by more students in Year 11 than by students in Year 10”

(b) Is Navi correct?

Explain why you think this.

No, the number of Year 11 students is unknown

150° is more than 135° so the proportion of Year 11 studying French is greater, however it could be a greater proportion of a smaller number of students

(1)

(Total for Question 14 is 4 marks)

15 There are 20 buttons in a box.

There are

6 blue buttons
9 green buttons
5 red buttons.

Jai puts 12 more buttons in the box.
These buttons are either blue buttons or red buttons.

Jai is going to pick at random one button from the box.

The probability that this button will be blue is $\frac{1}{4}$

How many more red buttons did Jai put in the box?
You must show all your working.

$20 + 12$ ← Adding the 12 buttons to the original 20 finds that there are now 32 buttons in the box

$\frac{1}{4} \times 32$ ← Multiplying the probability of blue by the total number of buttons finds that there are now 8 blue buttons

$8 - 6$ ← Subtracting the original 6 blue buttons from the now 8 blue buttons finds that 2 blue buttons were added

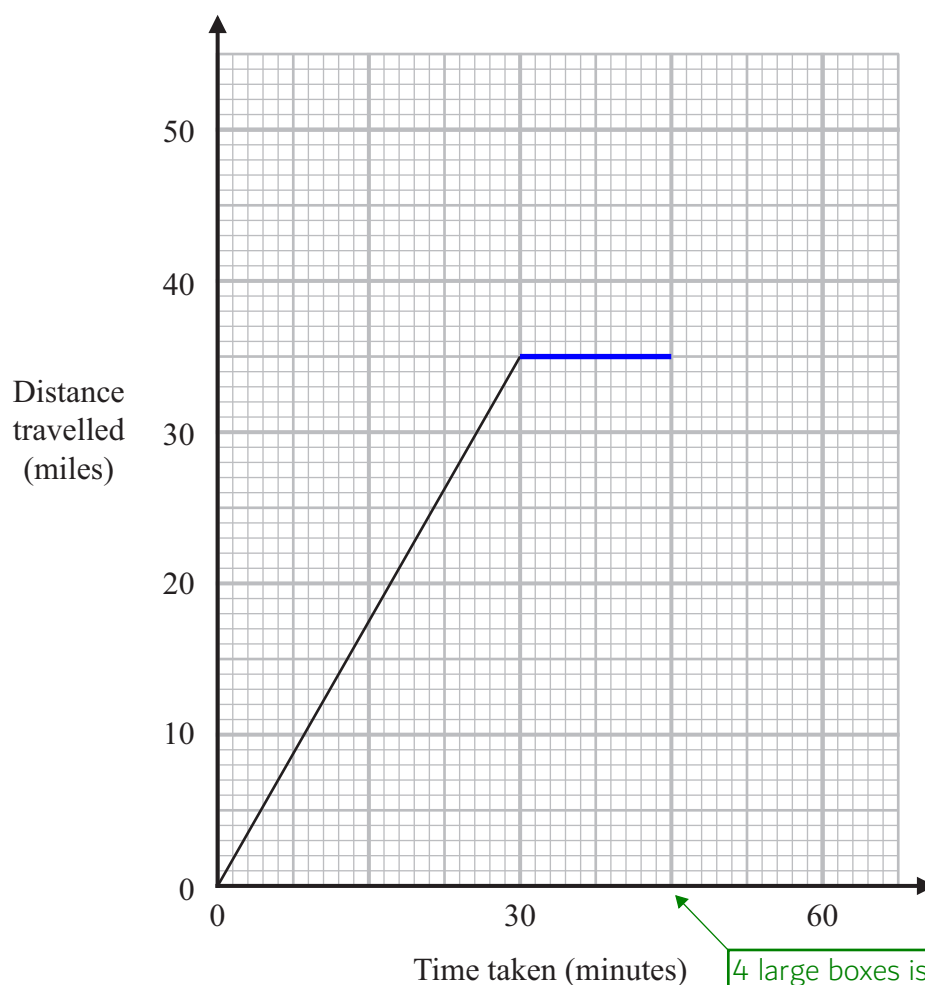
$12 - 2$ ← Subtracting the 2 added blue buttons from the 12 added buttons finds that 10 red buttons were added

10

(Total for Question 15 is 4 marks)

16 A train travels from Derby to Sheffield.

The travel graph shows information about the train's journey.



4 large boxes is worth 30 minutes.
So 2 large boxes is worth 15 minutes

- (a) Work out the speed of the train.
Give your answer in miles per hour.

$30 \div 60$ ← 1 hour = 60 minutes. So dividing the 30 minutes by 60 converts it to 0.5 hours

$35 \div 0.5$ ← Miles per hour means to divide the distance in miles by the time in hours

70 miles per hour
(2)

The train stays at Sheffield for 15 minutes.

- (b) Show this information on the travel graph.

15 minutes after 30 minutes is 45 minutes. The distance does not change (1)

(Total for Question 16 is 3 marks)

- 17 A village hall needs a new heating system.

The cost of the heating system is £9000

A community grant will pay 85% of this cost.

The village council will pay the rest of the cost.

Work out how much the village council will pay.

$$\frac{85}{100} \times 9000$$

Putting the 85% over 100 converts it to a fraction. Multiplying this fraction by £9000 finds that 85% of £9000 is £7650, which is what the community grant covers

$$9000 - 7650$$

Subtracting the £7650 the community grant covers from the £9000 finds that the rest which the village council pay is £1350

£.....1350

(Total for Question 17 is 3 marks)

- 18 A cube has a volume of 512 cm^3

Work out the surface area of the cube.

$$\sqrt[3]{512}$$

Volume of cube = length^3 . So cube rooting the volume finds that the edge length is 8 cm

$$8^2$$

Each face is a square. Area of square = length^2 . So each face has an area of 64 cm^2

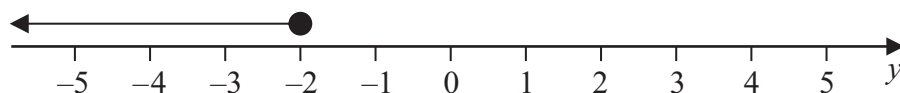
$$64 \times 6$$

There are 6 equal faces on a cube. So multiplying the area of one of the faces by 6 finds the surface area

.....384..... cm^2

(Total for Question 18 is 3 marks)

19 Here is an inequality in y shown on a number line.



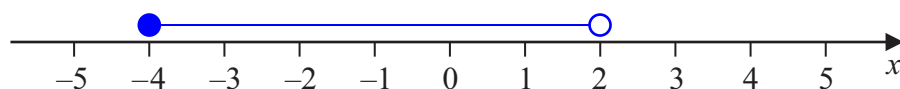
- (a) Write down the largest possible integer value for y .

y is less than or equal to -2 . It can be equal as the circle is shaded in

-2

(1)

- (b) On the number line below, show the inequality $-4 \leq x < 2$



The shaded in circle means it can be equal. The open circle means it cannot be equal. Drawing a line to the right of -4 as x is greater and to the left of 2 as x is less (2)

(Total for Question 19 is 3 marks)

20 (a) Express 250 as a product of its prime factors.

The calculator can do this

$$2 \times 5^3$$

(2)

(b) Find the lowest common multiple (LCM) of 30 and 25

$$2 \times 3 \times 5 \leftarrow \text{Expressing 30 as a product of its prime factors}$$

$$5^2 \leftarrow \text{Expressing 25 as a product of its prime factors}$$

$$2 \times 3 \times 5^2 \leftarrow \text{The LCM is the highest power of each prime in both lists multiplied together}$$

Alternatively, newer Casio calculators can find the LCM without having to do this method

$$150$$

(2)

(Total for Question 20 is 4 marks)

21 Sid, Tam and Musa share £6900 in the ratio 2:3:5

Work out how much money each person receives.

$$2 + 3 + 5$$

Adding the number of parts in the ratio for each person finds that there are 10 parts in total in the ratio

$$6900 \div 10$$

Dividing the total £6900 by the 10 parts finds that 1 part of the ratio is worth £690

$$690 \times 2$$

Multiplying the value of 1 part of the ratio by 2 finds that the 2 parts represent £1380

$$690 \times 3$$

Multiplying the value of 1 part of the ratio by 3 finds that the 3 parts represent £2070

$$690 \times 5$$

Multiplying the value of 1 part of the ratio by 5 finds that the 5 parts represent £3450

Sid £.....1380

Tam £.....2070

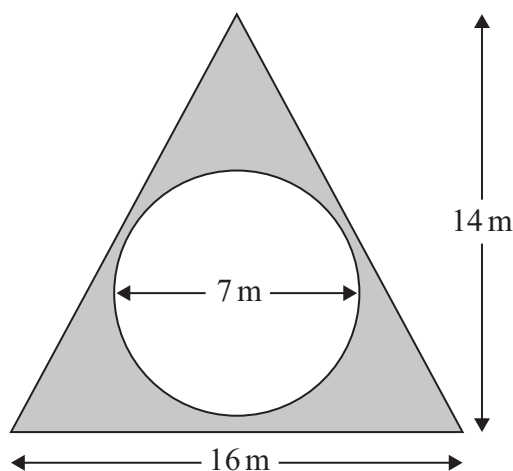
Musa £.....3450

(Total for Question 21 is 3 marks)

22 Here is a plan of part of Macsen's garden.

There is a circle inside a triangle.

The circle has a diameter of 7 m.



Macsen will cover the shaded area with gravel.

Gravel is sold in bags.

Each bag of gravel covers an area of 12.5 m^2

(a) Work out the number of bags of gravel Macsen will need.

$$\frac{1}{2} \times 16 \times 14 = 112 \quad \leftarrow \text{Area of triangle} = \frac{1}{2} \times \text{base} \times \text{height. So the area of the triangle is } 112 \text{ m}^2$$

$$7 \div 2 \quad \leftarrow \text{Radius is half the diameter. So dividing the diameter by 2 finds that the radius is } 3.5 \text{ m}$$

$$\pi \times 3.5^2 \quad \leftarrow \text{Area of circle} = \pi \times \text{radius}^2. \text{ So the area of the circle is } 38.4... \text{ m}^2$$

$$112 - 38.4... \quad \leftarrow \text{Subtracting the area of the circle from the area of the triangle finds that the shaded area to be covered with gravel is } 73.5... \text{ m}^2$$

$$73.5... \div 12.5 \quad \leftarrow \text{Dividing the area to be covered with gravel by the } 12.5 \text{ m}^2 \text{ each bag covers finds that } 5.8... \text{ bags are needed}$$

5.8... must be rounded up to 6 as rounding down to 5 would not be enough bags

6

bags

(4)

Macsen finds that each bag of gravel only covers an area of 11 m^2

(b) How does this affect your answer to part (a)?

$$73.5 \dots \div 11 = 6.6 \dots$$

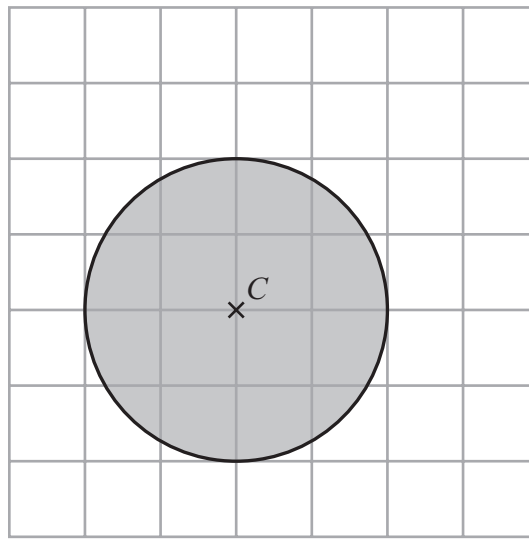
It will increase

Dividing the area to be covered with gravel by the 11 m^2 gives more than 6 bags

(1)

(Total for Question 22 is 5 marks)

23 The point C is shown on a centimetre grid.



A point P is at least 2 cm from the point C .

Nadia is asked to shade the region where point P could be.

Her answer is shown on the grid.

Explain the mistake Nadia has made.

Should have shaded outside of the circle

The circle is correct as all points on the circumference of the circle are 2 cm away from C . However shading inside the circle gives all the points 2 cm or less away from C , not at least 2 cm from C

(Total for Question 23 is 1 mark)

24 This year the total weight of potatoes grown on a farm is $\frac{1}{5}$ less than last year.

This year the total weight of potatoes grown is 8000 tonnes.

Work out the total weight of potatoes grown last year.

$$1 - \frac{1}{5}$$

There was 1 lot of potatoes grown last year. Subtracting the $\frac{1}{5}$ finds that this year is $\frac{4}{5}$ of last year

$$8000 \div 4$$

Dividing the 8000 tonnes by 4 takes it from $\frac{4}{5}$ to $\frac{1}{5}$ of the potatoes last year

$$2000 \times 5$$

Multiplying the value of $\frac{1}{5}$ of last year's potatoes by 5 finds the whole of the potatoes last year

.....10000..... tonnes

(Total for Question 24 is 3 marks)

25 Here are two lists of numbers.

List A 276 400 157 139

List B 530 500 270 x 440 320

mean of list A : mean of list B = 3 : 5

Work out the value of x .

$\begin{array}{c} t \\ m \quad n \end{array}$

Writing a formula triangle for mean, total, number. Total is all of the numbers added together and number is the number of numbers

$276 + 400 + 157 + 139$ ← Adding all the numbers in list A finds that their total is 972

$972 \div 4$ ← Covering m in the formula triangle finds that mean = total $\div$ number. So dividing the total of list A by the 4 numbers finds that the mean of list A is 243

$243 \div 3$ ← 3 parts of the ratio represent the mean of list A. So dividing the mean of list A by 3 finds that 1 part of the ratio is worth 81

81×5 ← Multiplying the value of 1 part of the ratio by the 5 parts representing the mean of list B finds that the mean of list B is 405

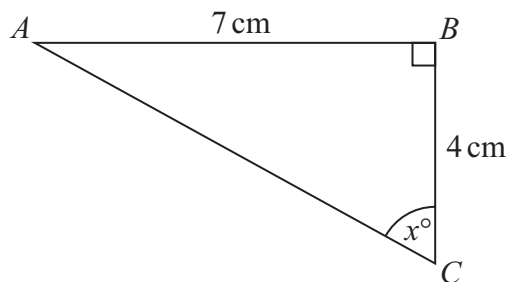
405×6 ← Covering t in the formula triangle finds that total = mean $\times$ number. So multiplying the mean of list B by the 6 numbers in list B finds that the total of list B is 2430

$2430 - 530 - 500 - 270 - 440 - 320$ ← Subtracting the known numbers from the total of list B finds that x is 370

$x = \dots\dots\dots 370$

(Total for Question 25 is 5 marks)

26 ABC is a right-angled triangle.



Calculate the value of x .

Give your answer correct to 1 decimal place.

SOHCAHTOA

Using right-angled trigonometry. Ticking O as the 7 cm is the opposite. Ticking A as the 4 cm is the adjacent. There are two ticks on the TOA formula triangle so this one can be used

$$\tan x = \frac{7}{4}$$

Covering t finds that $\tan$ of the angle = opposite/adjacent

$$x = \tan^{-1}\left(\frac{7}{4}\right)$$

Doing the inverse $\tan$ of both sides finds x

$$x = 60.3$$

(Total for Question 26 is 2 marks)

27 Metal rods are made from steel with density 8 g/cm^3

Each metal rod has a volume of 1500 cm^3

The maximum mass of metal rods that can be put on a trolley is 300 kg.

Work out the greatest number of metal rods that can be put on the trolley.

d^m_v

Writing a formula triangle for density, mass, volume

$$8 \times 1500$$

Covering m in the formula triangle finds that mass = density $\times$ volume. So the mass of each metal rod is 12000 g, as g was involved in the unit of density

$$12000 \div 1000$$

1 kg = 1000 g. So dividing the 12000 g by 1000 converts it to 12 kg

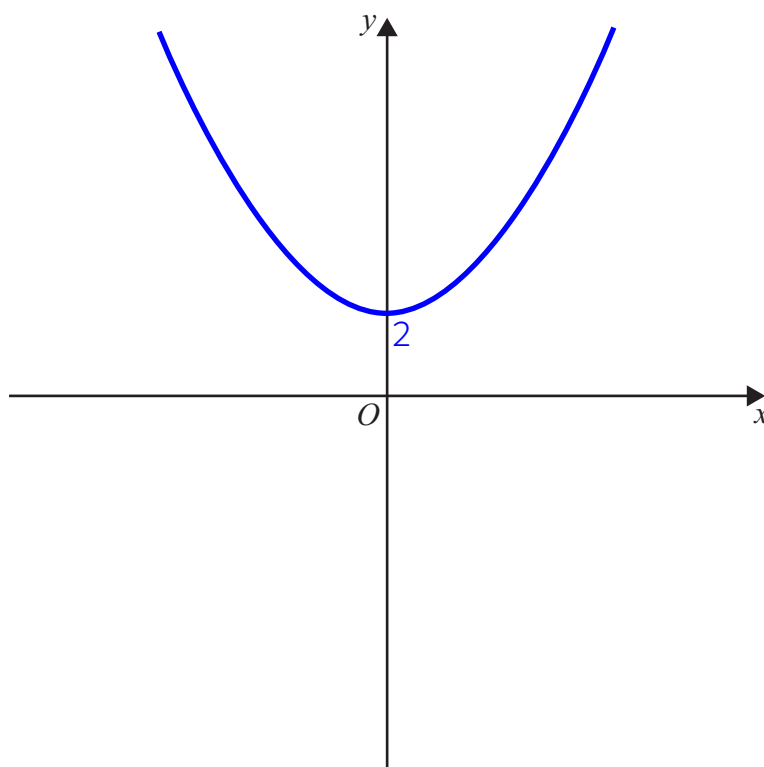
$$300 \div 12$$

Dividing the 300 kg by the 12 kg mass of each metal rod finds that 25 metal rods can be put on the trolley

$$25$$

(Total for Question 27 is 3 marks)

28 Sketch the graph of $y = x^2 + 2$



It is a U-shaped x^2 graph moved 2 upwards. Alternatively table mode can be used. Define $f(x) = x^2 + 2$. Start: -5. End: 5. Step: 1. This creates a table of values and the graph can be sketched using this

(Total for Question 28 is 2 marks)

29 The first three terms of a Fibonacci sequence are

$$a \quad 3a \quad 4a \quad 7a \quad 11a$$

The 5th term of this sequence is 286

Work out the value of a .

The Fibonacci sequence is continued by adding the two previous terms to get the next term. $3a + 4a = 7a$ then $4a + 7a = 11a$, which is the 5th term

$$286 \div 11 \leftarrow 11a = 286. \text{ Dividing both sides by 11 gets } a \text{ on its own}$$

$$a = \dots\dots\dots 26$$

(Total for Question 29 is 3 marks)

TOTAL FOR PAPER IS 80 MARKS