Summer 2025
Edexcel Higher
Between Papers Practice (Paper 2 & 3)

Dr Frost LEARNING

This resource has been designed to support GCSE revision. The questions are from our Question Generators on drfrost.org.

This resource has been designed to aid with revision for the Summer 2025 exams, considering topics which commonly appear on the calculator papers and those which have already been examined in Paper 1. There is **no guarantee** that any topics assessed in Paper 1 will not appear again.

Hence, **this should not be considered as a predicted paper** and should not be relied upon for total preparation for Paper 2 or 3.

Teachers

With a Dr Frost subscription, this selection of questions can be found as a worksheet here or by using the QR code.

From this page you can set this as an online task/homework or create a shadow paper for further practice.

All exam practice resources for multiple exam boards in summer 2025 can be found here.

Students

With a free Dr Frost account, you can compete this selection of questions online using the QR code & clicking 'Practice this Worksheet'.

The system will mark these automatically for you as you go and provide model solutions.

Question 1

Mehar collects the running times of 70 athletes and records the data in the table below.

Time (y seconds)	Frequency
$50 < y \leq 60$	6
$60 < y \leq 70$	7
$70 < y \leq 80$	23
$80 < y \leq 90$	12
$90 < y \leq 100$	7
$100 < y \leq 110$	15

Complete the cumulative frequency table.

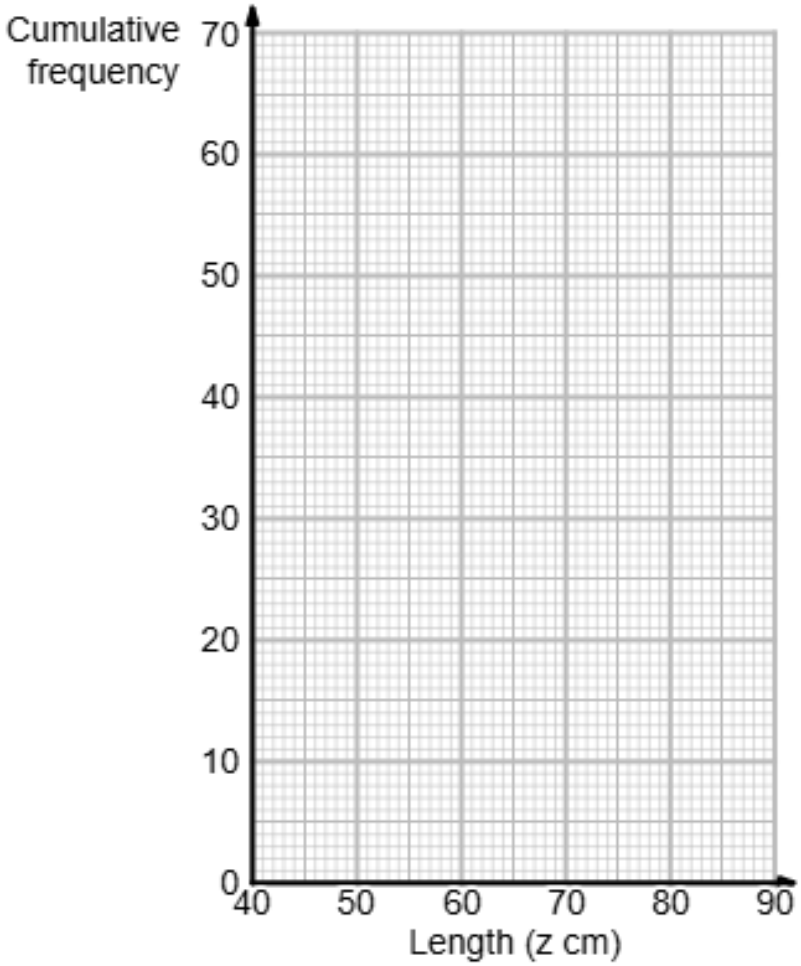
Time (y seconds)	Cumulative Frequency
$50 < y \leq 60$	
$50 < y \leq 70$	
$50 < y \leq 80$	
$50 < y \leq 90$	
$50 < y \leq 100$	
$50 < y \leq 110$	

Question 2

Jack collects the lengths of 70 animals and records the data in the table below.

Draw a cumulative frequency graph for the data in the table.

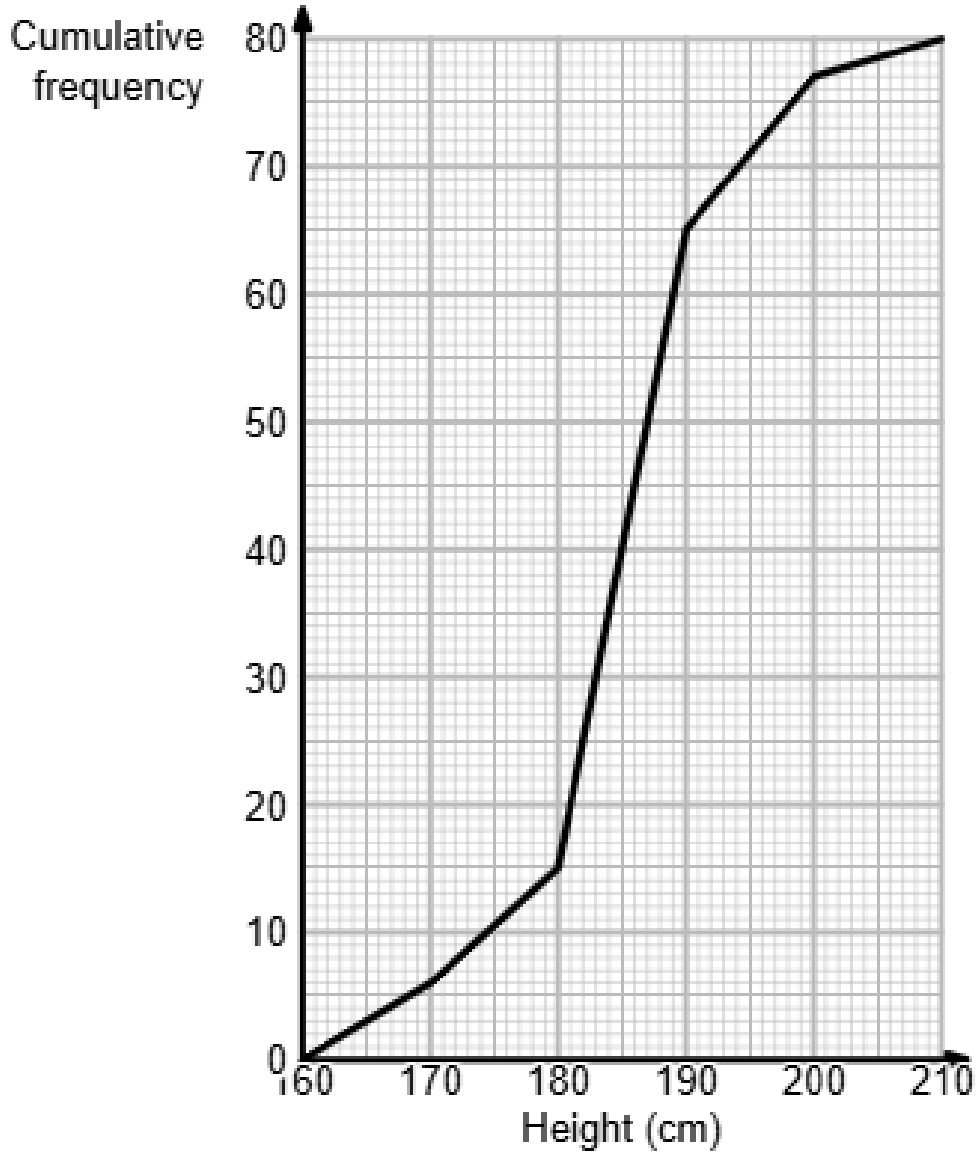
Length (z cm)	Cumulative frequency
$40 < z \leq 50$	3
$40 < z \leq 60$	10
$40 < z \leq 70$	57
$40 < z \leq 80$	67
$40 < z \leq 90$	70



Question 3

Jack collects the heights of some flowers and plots the values on the cumulative frequency graph below.

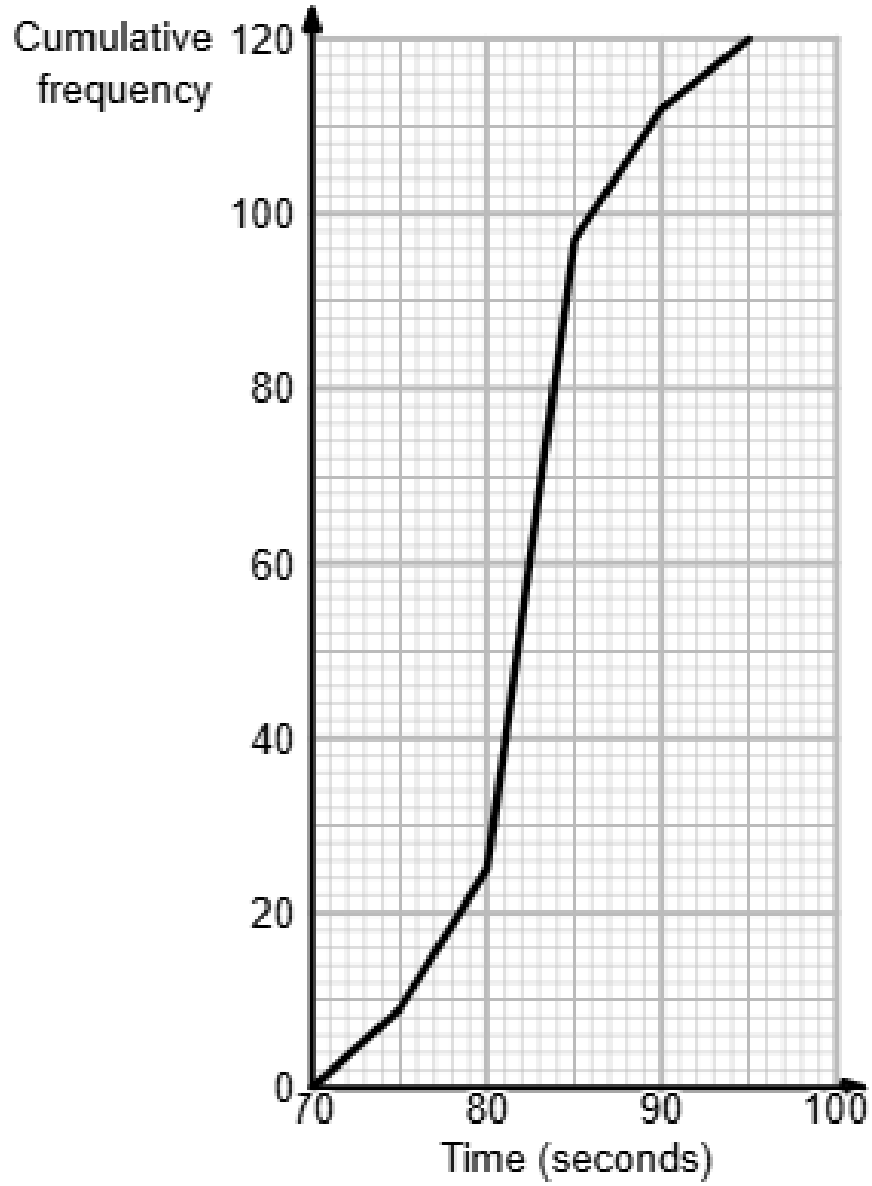
Use the cumulative frequency graph to estimate the interquartile range (IQR) of the data.



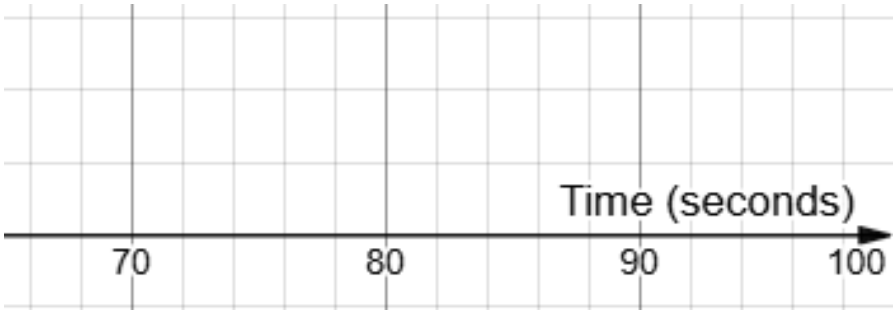
.....

Question 4

James collects the running times of some athletes and plots the values on the cumulative frequency graph below.



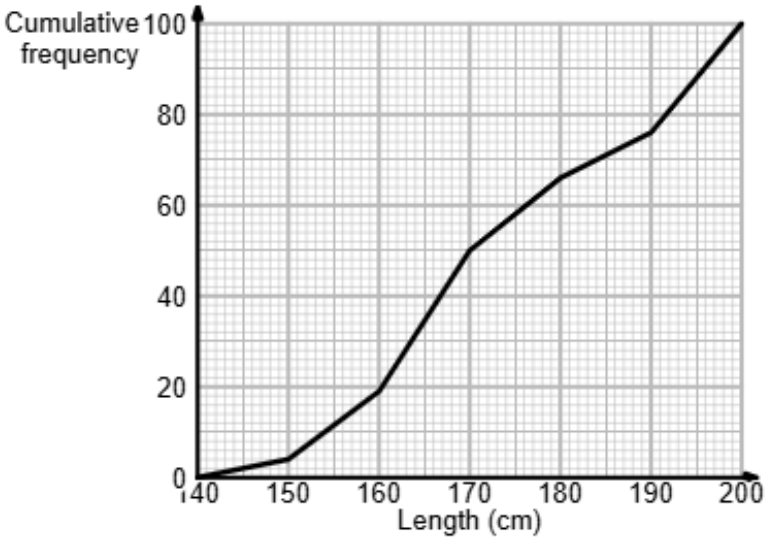
Use the cumulative frequency graph to draw a box plot.



Question 5

Joana collects the lengths of some animals and plots the values on the cumulative frequency graph below.

Use the cumulative frequency graph to estimate how many animals are smaller than 181 cm.



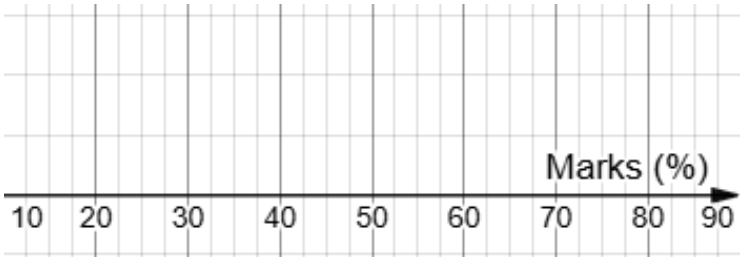
..... animals

Question 6

Elise recorded the marks some pupils achieved on a test and calculate the statistics below.

Minimum	15
Lower Quartile	21
Median	55
Upper quartile	63
Maximum	85

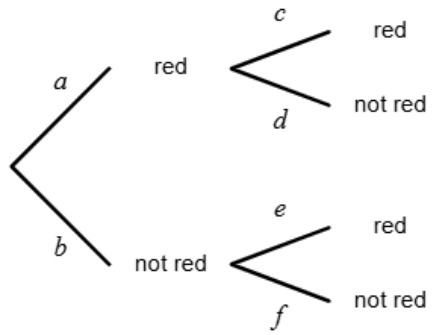
Show this information on the box plot.



Question 7

Christine has 4 red balls and 1 blue ball in a bag.

Christine takes one ball at random from the bag, keeps it, and takes another ball from the bag.



Complete the tree diagram.

$a = \ldots\ldots\ldots, b = \ldots\ldots\ldots, c = \ldots\ldots\ldots, d = \ldots\ldots\ldots, e = \ldots\ldots\ldots, f = \ldots\ldots\ldots$

Question 8

Louis has 6 purple counters and 4 green counters in a bag.

Louis takes one counter at random from the bag, keeps it, and takes another counter from the bag.

Find the probability that Louis takes two counters of different colours.

.....

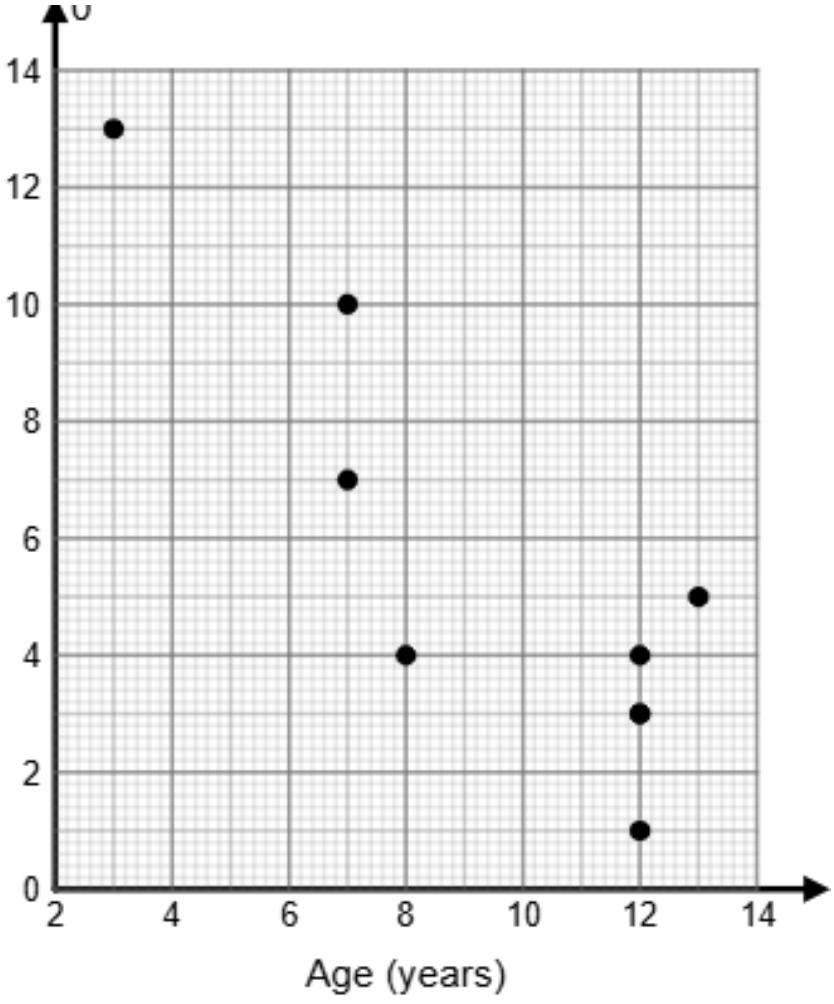
Question 9

The table shows the age (in years) and value (in thousands of pounds) of 10 cars of the same model.

Age (years)	10	10	11	6	10	5	1	10	5	2
Value (thousands of pounds)	3	5	7	6	6	9	15	5	12	11

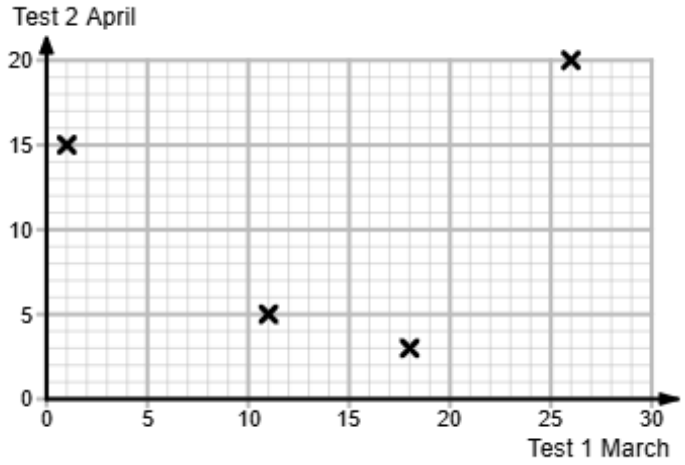
The points for the first 9 of these cars are shown on the scatter diagram.

Plot the point for the remaining car.



Question 10

The scatter diagram shows the marks obtained by 4 students in spelling tests in March and April.



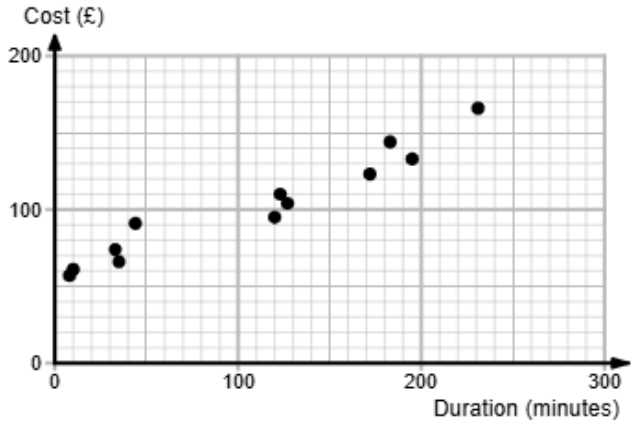
Write down the coordinates for the student that made the greatest improvement in their marks from March to April.

(..... , ...)

Question 11

A travel agent records the duration and cost of the 12 flights he sold on one day.

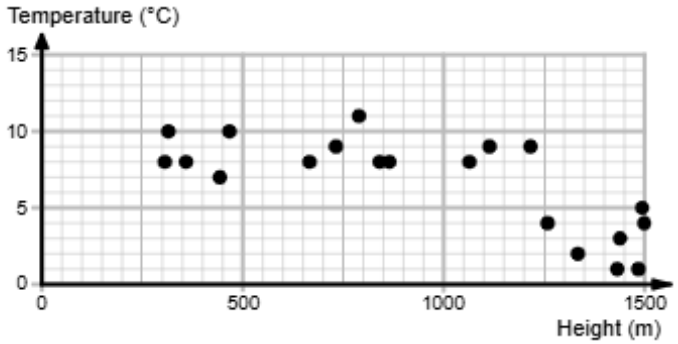
The data for the flights are plotted on the scatter diagram.



State the type and strength of the correlation shown in this scatter diagram.

Question 12

The scatter diagram shows the noon temperature at 20 different heights on a mountain.



Interpret the correlation shown in the scatter diagram by completing the sentence below.

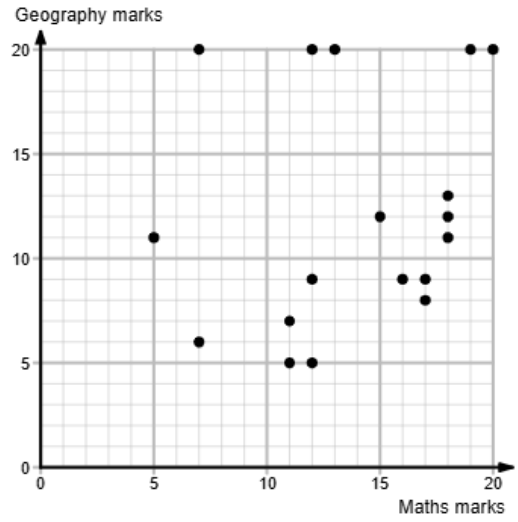
As the height increases, the temperature...

Question 13

18 pupils each took a Maths test and a Geography test.

Both tests were out of a maximum of 20 marks.

The results of these pupils are shown on the scatter diagram below.



Calculate the percentage of students that achieved full marks in their Geography test.

Give your answer correct to one decimal place.

..... %

Question 14

Simplify

$\frac{n^5}{n}$

.....

Question 15

Simplify

$\frac{8^8}{8^4 \times 8^3}$

.....

Question 16

State the value of n

$12^n = 1$

$n =$ .....

Question 17

Given that x is positive integer, find the value of x.

$\frac{(x^5)^2}{x^8} = 9$

$x =$ .....

Question 18

Simplify

$\left(7x^5y^5\right)^0$

.....

Question 19

Simplify

$\left(2p^8\right)^4$

.....

Question 20

Simplify

$\frac{25x^2y^{16}}{\left(5x^3\right)^3}$

.....

Question 21

Simplify

$\left(2x^3\right)^{-2}$

.....

Question 22

Simplify fully:

$\left(\frac{36t^4w}{9t^6w^3}\right)^{-2}$

.....

Question 23

Given that $x^{-2} = \frac{1}{25}$ find the possible values of x.

$x =$.....

or $x =$.....

Question 24

Write down the value of

$\left(\frac{9}{64}\right)^{\frac{1}{2}}$

.....

Question 25

Simplify

$\left(64a^{21}b^{3}\right)^{-\frac{2}{3}}$

.....

Question 26

The sides of a biased spinner are labelled with colours.

Ciro spins the spinner 300 times and records the number of times it lands on black, white, yellow, or green.

Colour	Black	White	Yellow	Green
Frequency	108	84	78	30

Work out the relative frequency of landing on black.

.....

Question 27

There is a biased die and Jennifer, Orlando, Ciaran, and Kabir are trying to calculate an estimate of the probability of getting a six.

Jennifer throws the die 100 times and records the number of sixes she got.

Orlando throws the die 50 times and records the number of sixes he got.

Ciaran throws the die 150 times and records the number of sixes he got.

Kabir throws the die 30 times and records the number of sixes he got.

Select whose estimate for the probability of getting a six is the most reliable.

Jennifer [ ]

Orlando [ ]

Ciaran [ ]

Kabir [ ]

Question 28

A number y, when rounded to 2 significant figures, is equal to 5.3

Find the error interval for y.

.....

Question 29

A number x, when truncated to 1 decimal place, is equal to 4.8

Find the upper and lower bound of x.

Lower bound = ...

Upper bound = ...

Question 30

$p = 5qr$

$q = 3.67$ correct to 2 decimal places.
$r = 0.875$ correct to 3 significant figures.

Work out the lower bound for the value of p.
Give your answer correct to 3 decimal places when appropriate.

.....

Question 31

$a = \frac{b}{c+d}$

$b = 4$ correct to 1 significant figure.
$c = 0.007$ correct to 1 significant figure.
$d = 1.74$ correct to 2 decimal places.

Work out the lower bound for the value of a.
Give your answer correct to 3 decimal places when appropriate.

.....

Question 32

$p = \frac{q}{r+s}$

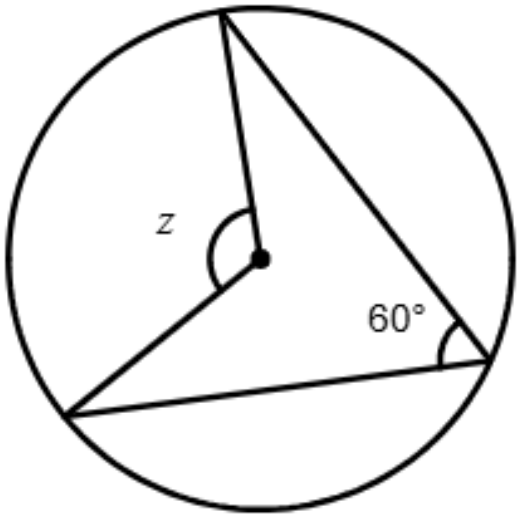
$q = 0.75$ correct to 2 decimal places.
$r = 0.6$ correct to 1 significant figure.
$s = 0.005$ correct to 1 significant figure.

By considering bounds, work out the value of p, giving your answer to a suitable degree of accuracy.

.....

Question 33

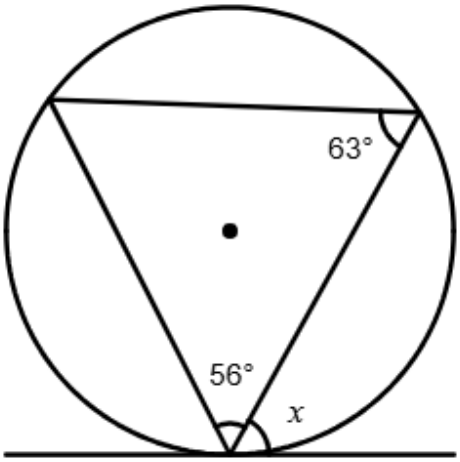
Find the value of z.



$z =$ ..... °

Question 34

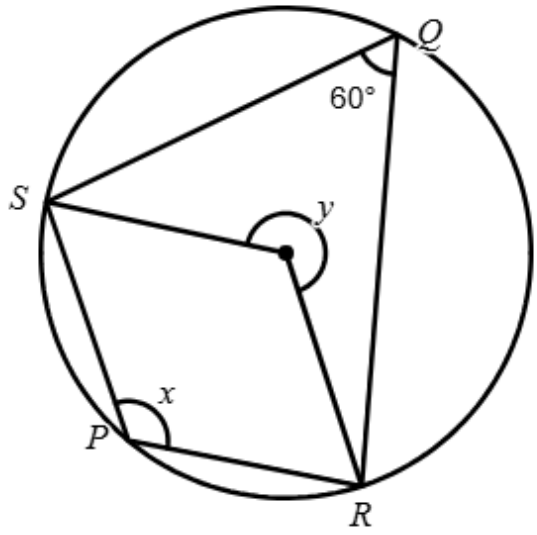
Find the value of x.



$x =$ ..... °

Question 35

Find the values of x and y.

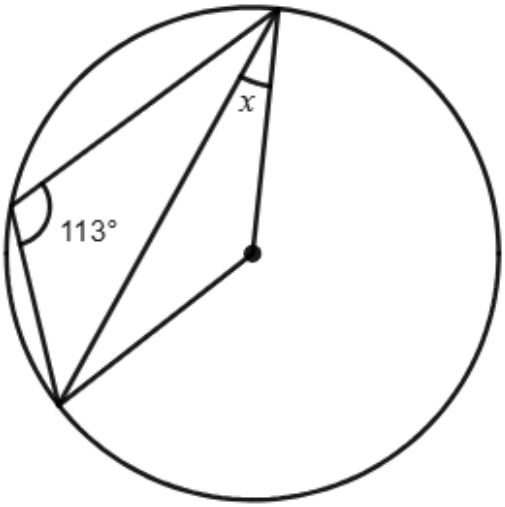


$x =$ ..... °

$y =$ ..... °

Question 36

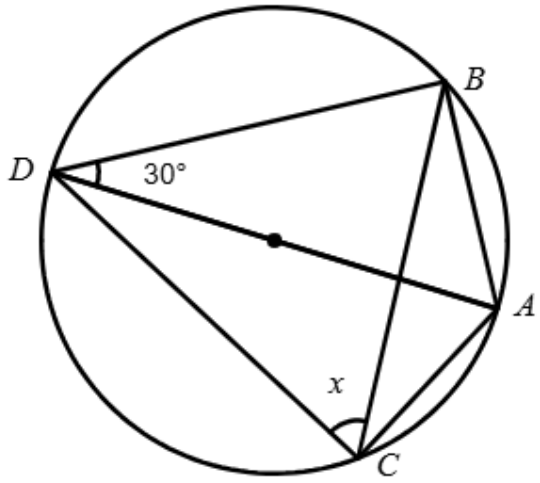
Find the value of x.



$x =$ ..... °

Question 37

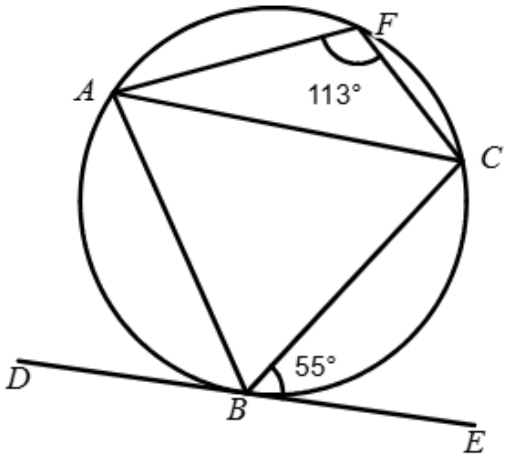
Find the value of x.



$x =$ ..... °

Question 38

DE is a tangent to the circle at B.



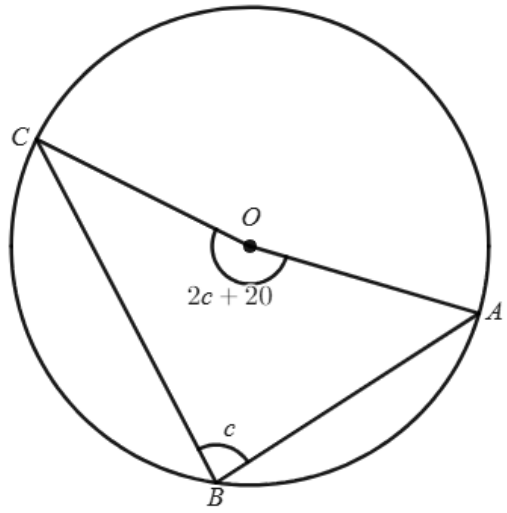
Find the value of $\angle BCA$.

$\angle BCA =$ ..... °

Question 39

A, B and C are points on a circle, centre O.

Angle $ABC = c$
Angle $AOC = 2c + 20$



Work out the value of c .

$c =$ ..... °

Question 40

Pierre buys a house worth £240 000 and it is expected to increase in value by 2 % each year.

Complete the following iterative formula to calculate the value of the house.

$V_0 =$ .....

$V_{n+1} =$ ..... V_n, where $n \geq 0$

Question 41

The iterative formula $u_{n+1} = 3\,u_n + b$ is used to generate the following terms.

$u_4 = 6$, $u_5 = 9$

Determine the value of b .

$b =$ .....

Question 42

The equation $x^3 + 2x - 7 = 0$ can be rearranged to give the iterative formula below.

$$x_{n+1} = \frac{a}{b\,x_n^2 + c}$$

Determine the values of a, b, and c.

$a =$ .....

$b =$ .....

$c =$ .....

Question 43

Show that $x^3 + 2x^2 - x = 1$ has a solution between $x = 0$ and $x = 1$.

When $x = 0$, $y =$ .....

When $x = 1$, $y =$ .....

As there is a change in sign, there must be at least one root between $x = 0$ and $x = 1$.

Question 44

We wish to solve the equation $2x^3 + 5x^2 + 4x + 1 = 0$

This can be rearranged to $x = \sqrt[3]{\frac{-5x^2 - 4x - 1}{2}}$

Starting with $x_0 = 2$, use the iteration formula

$$x_{n+1} = \sqrt[3]{\frac{-5x_n^2 - 4x_n - 1}{2}}$$

to find the value of x_3.

Give your answer correct to 3 decimal places.

$x_3 =$ .....

Question 45

Logan invests £780 into an account that pays 4% compound interest per year.

Work out how much Logan will have in the account after 19 years.

£ .....

Question 46

Connor buys a watch for £ 1225.

It decreased in value by 1% per year for 5 years, then decreased in value by 10% for 1 year.

Find the new value of the watch.

£ .....

Question 47

Aurora is planning on investing £600 into a savings account for 3 years. She is presented with the two options below.

Account A	Account B
Pays simple interest of 2 % per year.	Pays compound interest of 1 % per year.

Determine which account will give Aurora the best value after 3 years.

Question 48

Levi invested £18000 into an account paying r % simple interest.

Helena invested £18000 into an account paying 3 % compound interest.

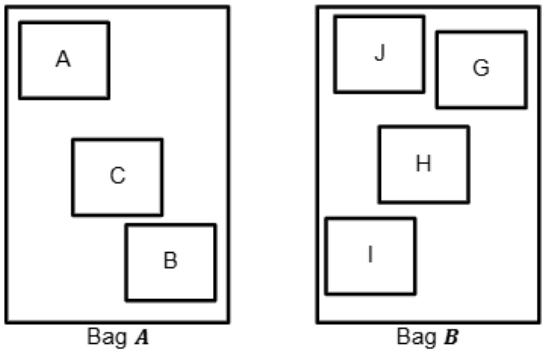
After 4 years, Levi and Helena's accounts both contain the same amount of money.

Calculate r.
Give your answer correct to 2 decimal places.

$r =$ .....

Question 49

There are three cards in bag $\boldsymbol{A}$ and four cards in bag $\boldsymbol{B}$.
There is a letter on each card.



Theo takes a card from bag $\boldsymbol{A}$ and then a card from bag $\boldsymbol{B}$.

Work out how many possible outcomes there are.

.....

Question 50

Karima is going to customise their car. There are 12 body colour, 8 wheel type and a number of decals.

The total number of ways Karima can choose the body colour, wheel type and decals is 1152.

Work out how many decals Karima can choose from.

..... decals

Question 51

A restaurant has the following menu.

Starter	Main	Dessert
taco prawn salad spring roll	chicken ramen curry curry fajitas risotto	trifle donut parfait

Said would like either a starter and a main meal or a main meal and a dessert.

Work out how many choices he has.

..... choices

Question 52

A mobile phone store offers the following with their mobile phone plans; 9 case designs, 3 screen protectors and 6 free gifts.

Ewan is going to choose two of the three options.

Work out how many possible choices Ewan has.

..... choices

Question 53

There are 9 boys and 12 girls in Delfina's class.
She is going to pick three different students from her class and write their names in one of the following orders

boy girl boy	OR	girl boy girl

Work out how many different lists Delfina can write.

..... lists

Question 54

Liz makes a 4 digit number at random using all of the cards below.

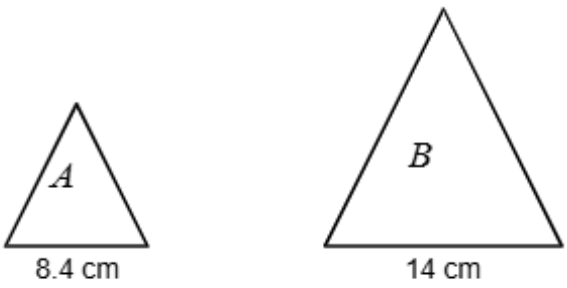
4	5	7	9

Determine the probability that the number Liz makes is an odd number less than 7000.

$\frac{\square}{\square}$

Question 55

Triangles A and B are similar.
The length of the base of triangle A is 8.4 cm.
The length of the base of triangle B is 14 cm.

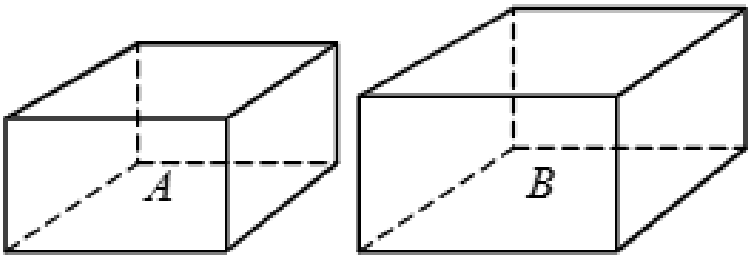


The area of triangle A is 43.2 cm ^{2}.
Find the area of triangle B.

..... cm ^{2}

Question 56

A and B are two solid cuboids that are mathematically similar.



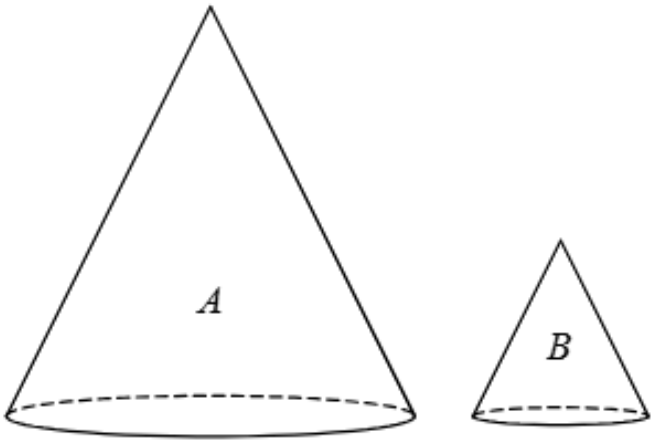
The volume of A is 734.4 cm ^{3}.
The volume of B is 1166.2 cm ^{3}.
The height of B is 10.5 cm.

Find the height of A.

..... cm

Question 57

A and B are two solid cones that are mathematically similar.



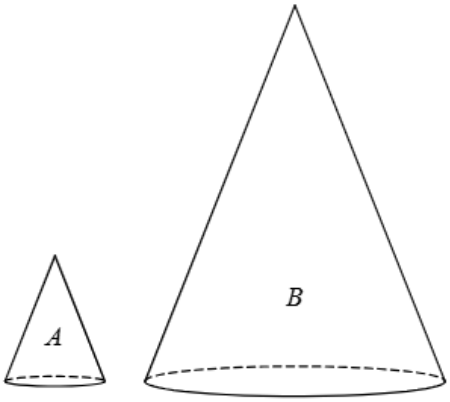
The volume of A is 343 cm ^{3}.
The volume of B is 27 cm ^{3}.
The surface area of B is 26.1 cm ^{2}.

Find the surface area of A.

..... cm ^{2}

Question 58

A and B are two solid cones that are mathematically similar.
The length scale factor from A to B is 3.

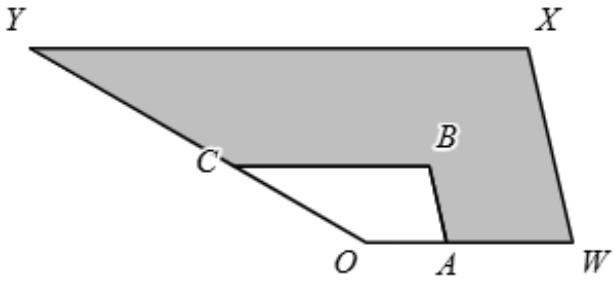


Find the ratio of the surface area of cone A to the surface area of cone B.

..... : .....

Question 59

The diagram shows two similar trapeziums $OABC$ and $OWXY$.



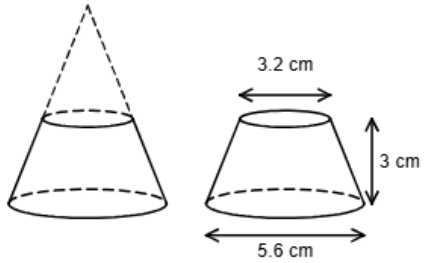
The length of BC is 9 cm and the length of XY is 23 cm.
The area of trapezium $OWXY$ is 185.15 cm ^{2}.

Find the shaded area.

..... cm ^{2}

Question 60

A frustum is made by removing a small cone from a large cone.
The cones are mathematically similar.



The diameter of the base of the frustum is 5.6 cm.
The diameter of the top face of the frustum is 3.2 cm.
The height of the frustum is 3 cm.

Find the volume of the frustum.
Give your answer to 1 decimal place.

..... cm ^{3}

Question 61

Convert 7870000 to standard form.

☐ x 10 ☐

Question 62

Convert 0.00461×10^{-1} to standard form.

☐ x 10 ☐

Question 63

Work out

$\left(8 \times 10^{-4}\right) \times \left(5 \times 10^{-19}\right)$

Give your answer in standard form.

$\square$ x 10 $\square$

Question 64

It takes a group of bricklayers 490 hours to build a wall with a length of 70 m .

Find how long it would take the same group, working at the same rate, to build a wall with a length of 77 m.

..... hours

Question 65

This is a list of ingredients for making a cake for 5 people.

Ingredients for 5 people

170 g flour
140 ml cream
180 g sugar
180 g chocolate
100 g fruits

Work out the amount of each ingredient needed to make a cake for 25 people.

..... g flour

..... ml cream

..... g sugar

..... g chocolate

..... g fruits

Question 66

In a school, 5 classrooms are required if each class has 18 pupils.

How many classrooms would be required if the class size has reduced to 15?

..... classrooms

Question 67

The relationship between variables x and y is shown in the table below.

x	10	20	50	70
y	3.5	1.75	0.7	0.5

Determine whether the variables are in direct proportion, inverse proportion, or neither.

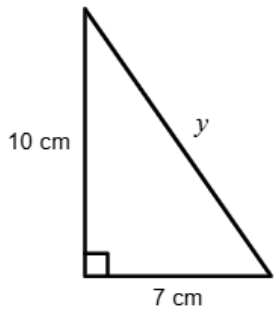
Direct [ ]

Inverse [ ]

Neither [ ]

Question 68

Find the value of y.

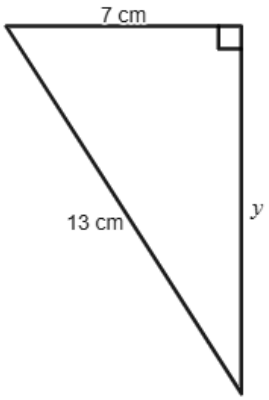


Give your answer correct to 1 decimal place.

$y =$ ..... cm

Question 69

Find the value of y.

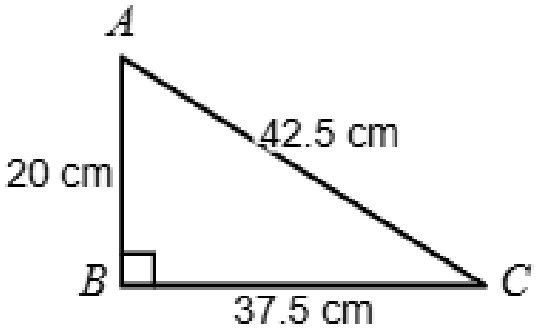


Give your answer correct to 1 decimal place.

..... cm

Question 70

Determine whether it is possible to construct the triangle with the lengths and angles given in the diagram below.

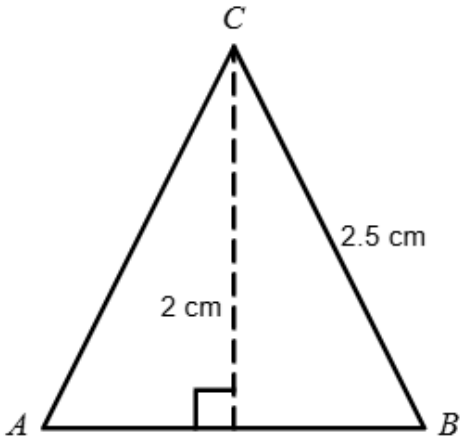


The triangle can be constructed. [ ]

The triangle can **not** be constructed. [ ]

Question 71

The diagram below shows the isosceles triangle ABC.

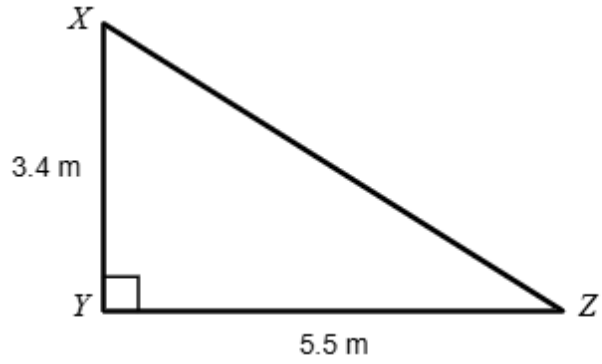


Find the area of triangle ABC.

..... cm ^{2}

Question 72

Thomas makes a framework from metal rods.
The framework is in the shape of the right-angled triangle XYZ shown in the diagram



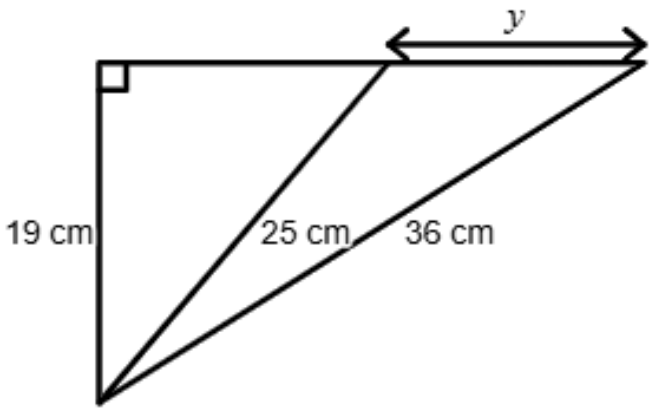
The metal that Thomas uses to make the framework costs £15 per metre.
The metal can **only** be bought in a length that is a whole number of metres.

Work out the total cost of the metal that Thomas buys in order to make the framework.

£ .....

Question 73

Find the value of y.



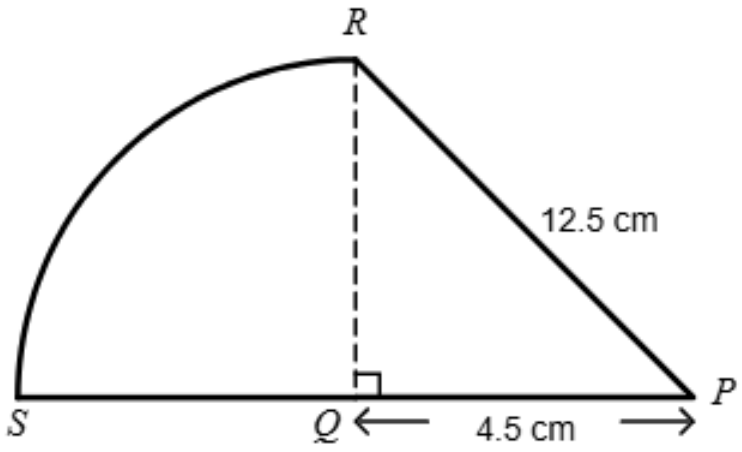
Give your answer correct to 1 decimal place.

$y =$ ..... cm

Question 74

The shape below consists of a right-angled triangle PQR and a quarter circle.
PQ has length 4.5 cm and PR has length 12.5 cm.

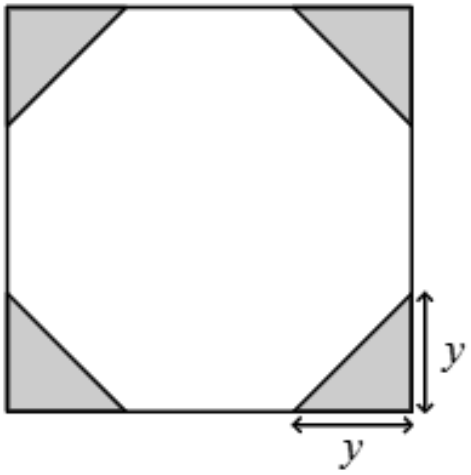
Calculate the perimeter of the shape.
Give your answer correct to 1 decimal place.



..... cm

Question 75

I have a square piece of card of side length 5 cm.
I cut a triangle from each corner so that the remaining shape is in the shape of a regular octagon.

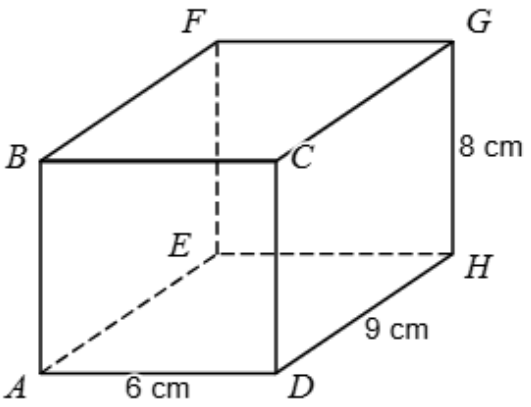


Work out the length y.
Give your answer correct to 2 decimal places.

..... cm

Question 76

$ABCDEFGH$ is a cuboid.

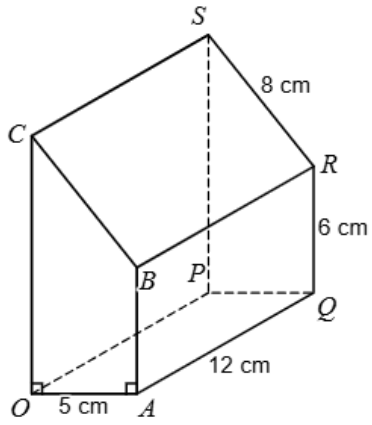


Find the length of AG.
Give your answer correct to 1 decimal place.

..... cm

Question 77

The diagram below shows a prism with a trapezium cross-section.

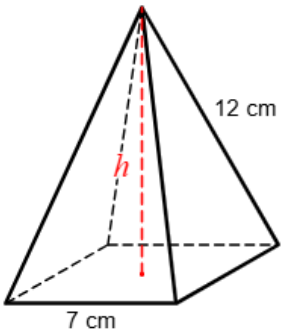


Find the length of OC.
Give your answer to 1 decimal place.

..... cm

Question 78

The diagram below shows a square-based pyramid.
The vertex of the pyramid is directly above the centre of the base.



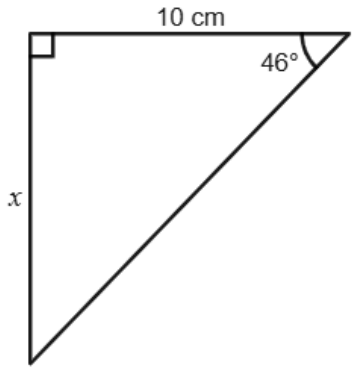
The length of each slanting edge of the pyramid is 12 cm.

Find the height of the pyramid.
Give your answer to 1 decimal place.

..... cm

Question 79

Determine the value of x in the diagram.

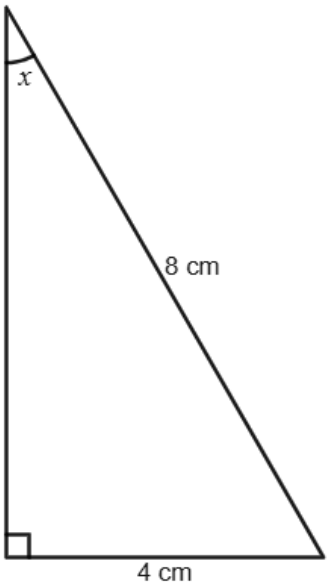


Give your answer correct to 1 decimal place.

$x =$ ..... cm

Question 80

Determine the value of x.

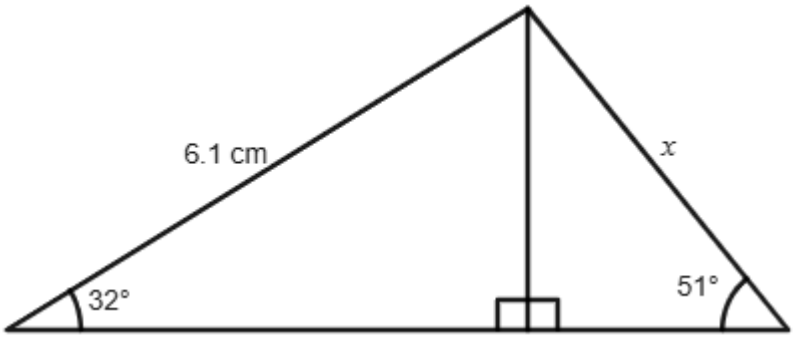


Give your answer correct to 1 decimal place where appropriate.

$x =$ ..... °

Question 81

Work out the value of x.



Give your answer correct to 1 decimal place.

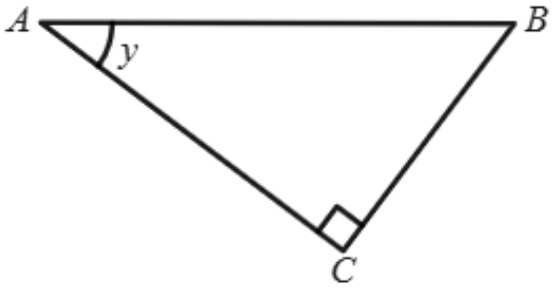
$x =$ ..... cm

Question 82

Given that

Side BC : Side $AB = 3:5$

find the value of y.

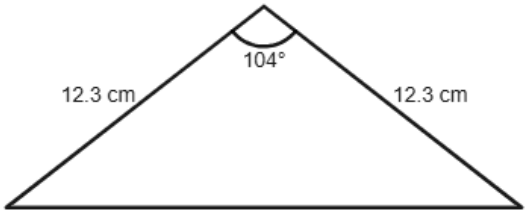


Give your answer correct to 1 decimal place.

$y =$ ..... °

Question 83

Work out the perimeter of the following isosceles triangle.

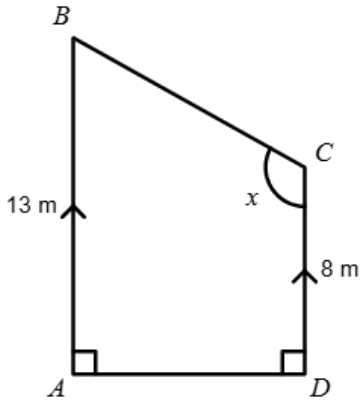


Give your answer correct to one decimal place.

..... cm

Question 84

$ABCD$ is a trapezium with area 94.5 m ^{2}.



Work out the value of x.
Give your answer correct to 1 decimal place.

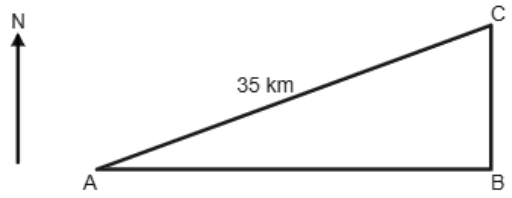
$x =$ ..... °

Question 85

The bearing of C from A is 070°.

B is due east of A and C is due north of B.

The distance from A to C is 35 km.

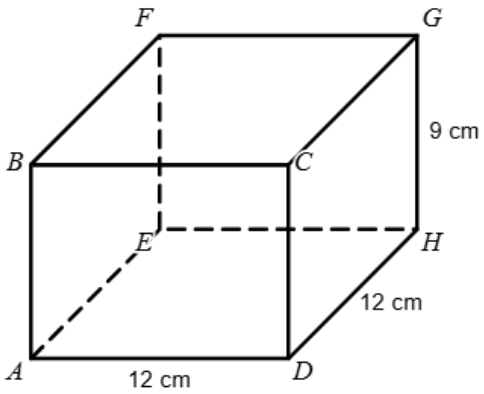


Work out the distance between A and B.
Give your answer correct to 1 decimal place.

..... km

Question 86

$ABCDEFGH$ is a cuboid.

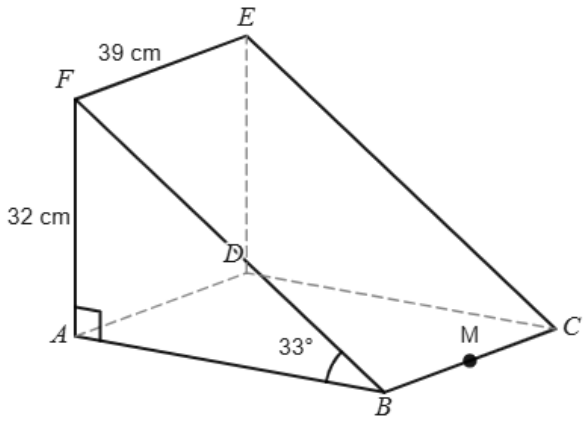


Find the angle between the line BH and the plane $AEHD$.
Give your answer correct to 1 decimal place.

..... °

Question 87

The diagram shows a triangular prism $ABCDEF$.



Angle $BAF = 90^{\circ}$.
$AF = 32$ cm and $FE = 39$ cm.
Angle $FBA = 33^{\circ}$.

M is the midpoint of BC.

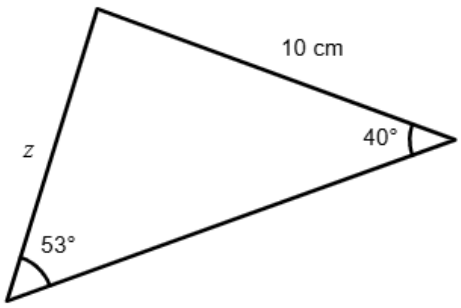
Calculate the length of EM.

Give your answer correct to one decimal place.

..... cm

Question 88

Find the value of z.

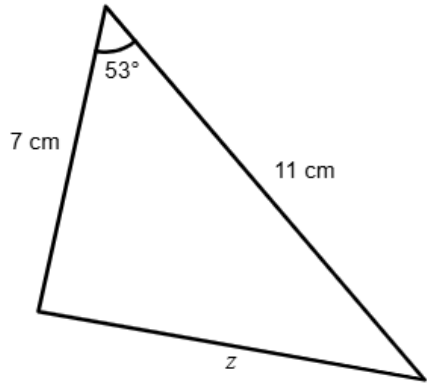


Give your answer correct to 1 decimal place.

$z =$ ..... cm

Question 89

Find the value of z.



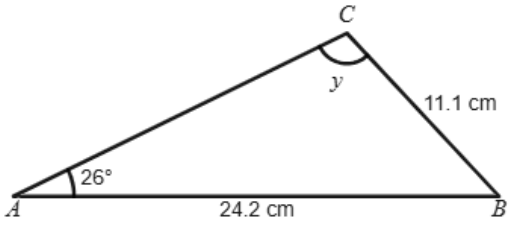
Give your answer correct to 1 decimal place.

$z =$ ..... cm

Question 90

The angle y is obtuse.

Find the value of y.

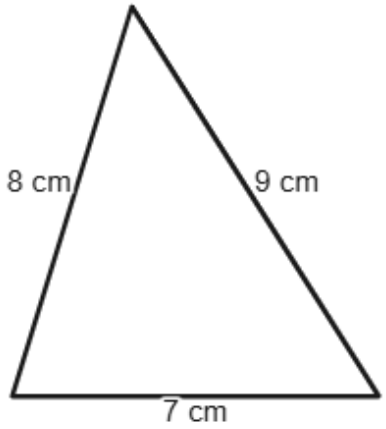


Give your answer correct to 1 decimal place.

$y =$ ..... °

Question 91

Find the value of the largest angle.

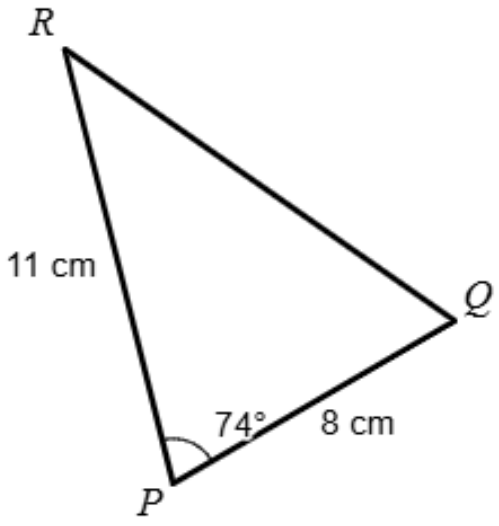


Give your answer correct to 1 decimal place.

..... °

Question 92

Find the area of the triangle PQR.

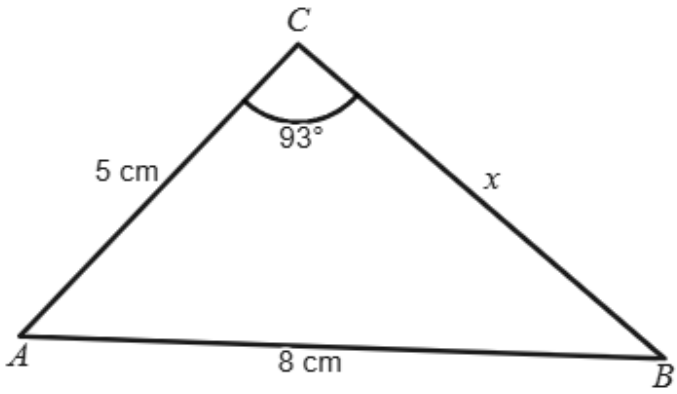


Give your answer correct to 1 decimal place.

..... cm ^{2}

Question 93

Find the value of x.



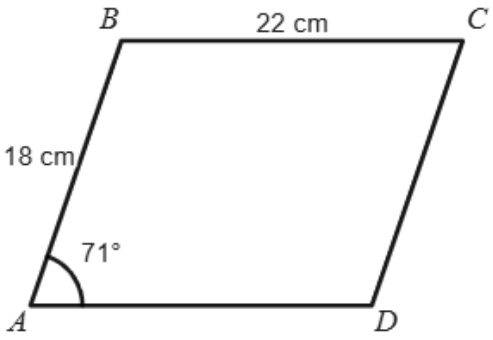
Give your answer correct to 1 decimal place.

$x =$ ..... cm

Question 94

In the parallelogram $ABCD$

$AB = 18$ cm
$BC = 22$ cm
angle $BAD = 71^{\circ}$

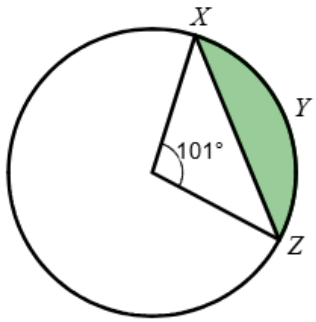


Find the area of the parallelogram $ABCD$.
Give your answer correct to 3 significant figures.

Area = ... cm ^{2}

Question 95

The area of the shaded region is 66 cm ^{2}.

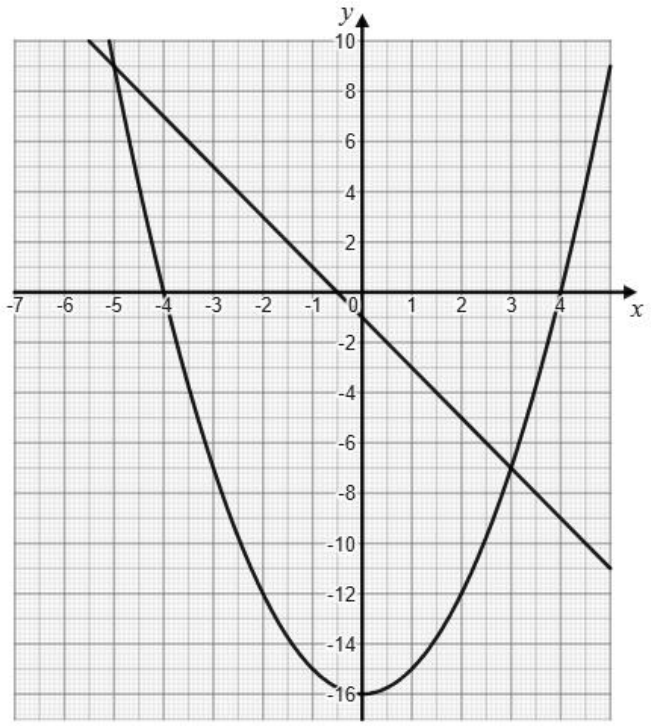


Find the length of the arc XYZ.

..... cm ^{2}

Question 96

The diagram shows the graphs of $y = x^2 - 16$ and $y = -2x - 1$

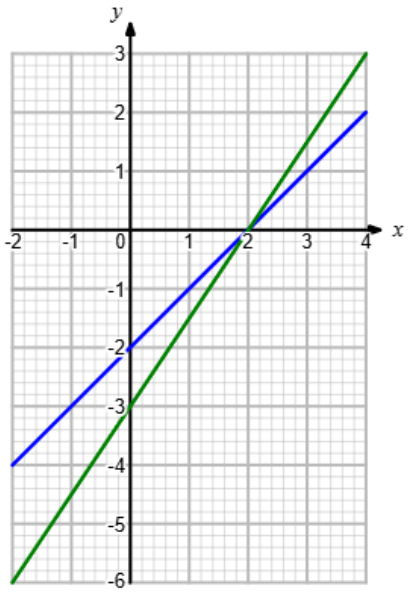


State the number of solutions to $x^2 - 16 = -2x - 1$

.....

Question 97

The diagram shows the graphs of $y = x - 2$ and $y = \frac{3}{2}x - 3$.



Use the graphs to find the solutions of the simultaneous equations $\begin{cases} y = x - 2 \\ y = \frac{3}{2}x - 3 \end{cases}$

$x =$ .....

$y =$ .....

Question 98

Solve the following simultaneous equations.

$$\begin{cases} 3x + 4y = -1 \\ 5x + 4y = 9 \end{cases}$$

$x =$ ....., $y =$ .....

Question 99

Solve the following simultaneous equations.

$$\begin{cases} 3p + q = 1 \\ -5p + 2q = -9 \end{cases}$$

$p =$ ....., $q =$ .....

Question 100

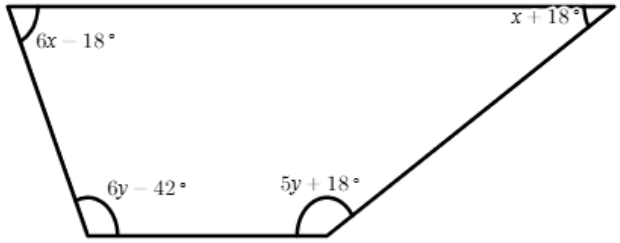
Solve the following simultaneous equations.

$$\begin{cases} -3x + 2y + 7 = 0 \\ 2x + 3y + 4 = 0 \end{cases}$$

$x = \ldots\ldots\ldots, y = \ldots\ldots\ldots$

Question 101

This diagram shows a trapezium.



Work out the values of x and y.

$x = \ldots\ldots\ldots, y = \ldots\ldots\ldots$

Question 102

Solve the following simultaneous equations.

$$\begin{cases} y = 2x^2 - 12x + 2 \\ y = x - 4 \end{cases}$$

$x = \ldots\ldots\ldots, y = \ldots\ldots\ldots$

or $x = \ldots\ldots\ldots, y = \ldots\ldots\ldots$

Question 103

Solve the following simultaneous equations.

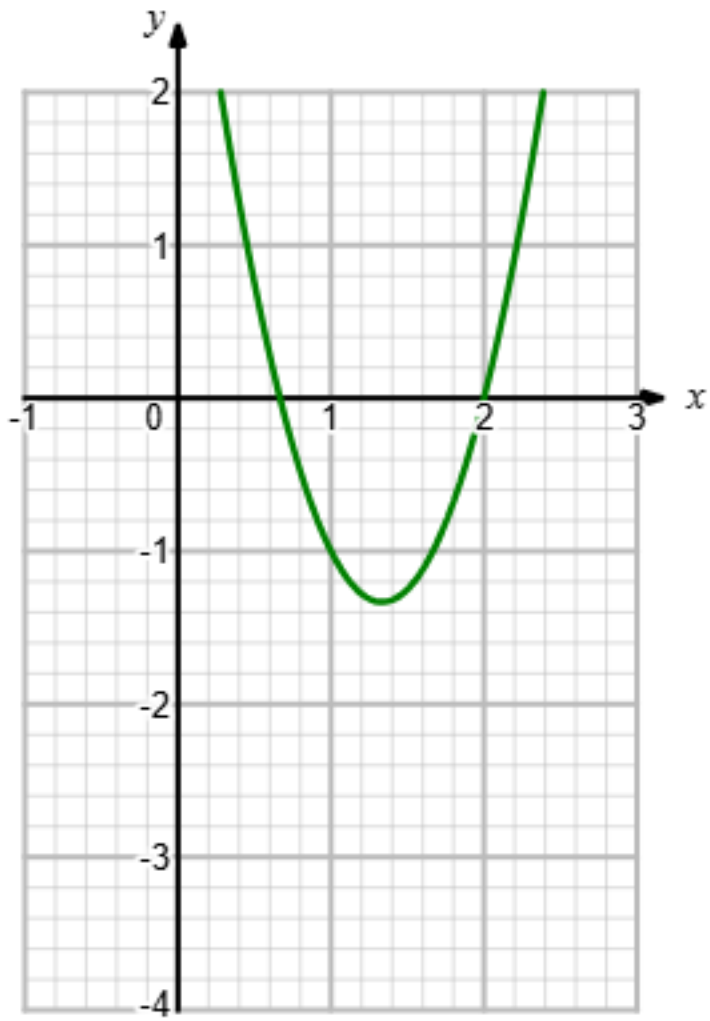
$$\begin{cases} y = x + 3 \\ x^2 + y^2 = 9 \end{cases}$$

$x = \ldots\ldots\ldots, y = \ldots\ldots\ldots$

or $x = \ldots\ldots\ldots, y = \ldots\ldots\ldots$

Question 104

The graph of $y = 3x^2 - 8x + 4$ is drawn below.



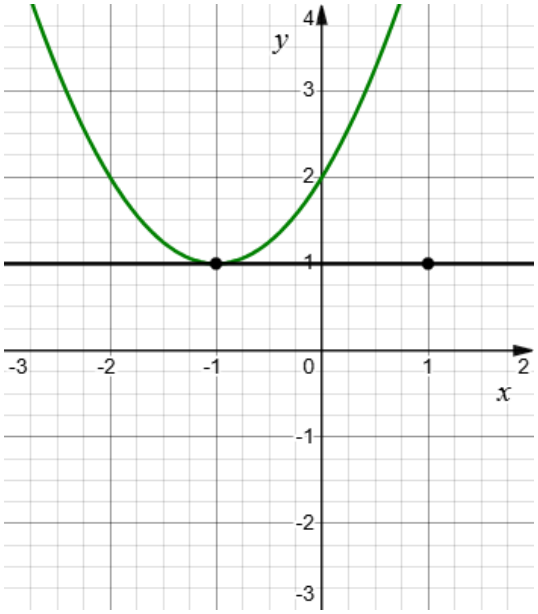
Use the graph to solve $3x^2 - 8x + 4 = 0$

$x \approx$ .....

$x \approx$ .....

Question 105

The graph of $y = x^2 + 2x + 2$ is drawn below.



Draw a suitable line to solve $x^2 + 2x + 2 = 2$

$x \approx$ .....

$x \approx$ .....

Question 106

Given that $g(x) = \frac{4x}{3} - 3$, find $g^{-1}(x)$.

$g^{-1}(x) =$ .....

Question 107

Expand

$4x(3x + 4y)$

.....

Question 108

Expand and simplify

$7(3a - t + 1) + 4$

.....

Question 109

Expand and simplify

$5(5m - 3) - (3m - 5)$

.....

Question 110

Expand and simplify

$(x + 9)(x - 3)$

.....

Question 111

Expand and simplify:

$(x + 2)^2$

.....

Question 112

Expand and simplify

$5x(3x - 5)(x + 5)$

.....

Question 113

Expand and simplify:

$(y + 3)(y - 3)(y + 1)$

.....

Question 114

Expand and simplify:

$(4x + 3)^3$

.....

Question 115

Factorise fully

$12t^2 - 32t$

.....

Question 116

Expand, simplify and fully factorise

$5(7 - 8p) + 7(8p - 9)$

.....

Question 117

Factorise the following quadratic:

$x^2 - 10x + 24$

.....

Question 118

Factorise the following:

$121 - 25x^2$

.....

Question 119

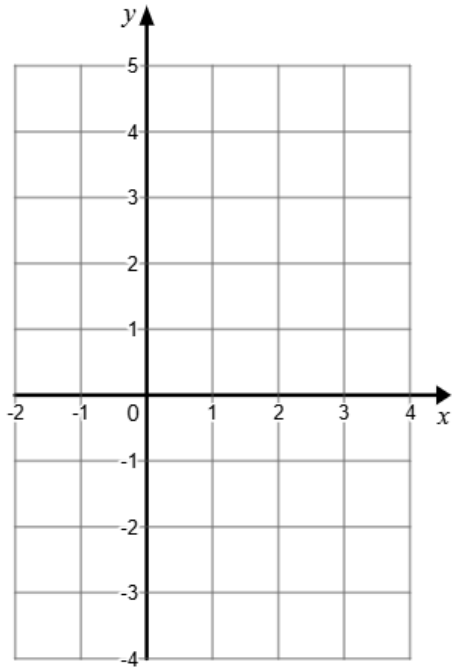
Factorise the following:

$4x^2 + 8x - 5$

.....

Question 120

Plot the graph of $y = -\frac{2}{3}x + 2$



Question 121

Write down the equation of the straight line with a gradient of $-\frac{3}{2}$ that intersects the y axis at $(0,3)$.

Give the equation in the form $ax + by + c = 0$ where a, b and c are integers in their lowest terms.

.....

Question 122

Determine if the following equations are parallel.

$$y = -2x + 4$$
$$x - 2y = 2$$

Parallel [ ]

Not parallel [ ]

Question 123

The point A has coordinates $(-2, 8)$ and the point B has coordinates $(9, -47)$.

The line L_1 passes through B and is perpendicular to AB.

Find an equation for the line L_1.

Give your answer in the form $y = mx + c$

.....

Question 124

Adam is z years old.

Latika is 4 times as old as Adam.

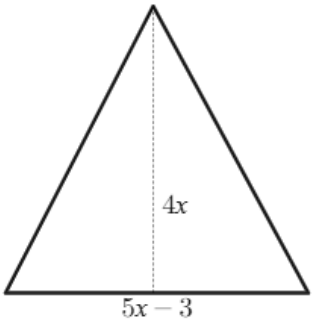
John is 5 times as old as Latika.

Write down an expression, in terms of z, for John's age.

.....

Question 125

The diagram shows a triangle.



Write down an expression for the area of the triangle.

.....

Question 126

Solve for y:

$4 = 52 + 4y$

$y =$.....

Question 127

Solve to find x.

$6 - \frac{1}{4}x = 7$

$x =$.....

Question 128

Solve for x:

$\frac{7x-4}{3} = \frac{5x+6}{2}$

$x =$.....

Question 129

Solve for x:

$2(x-7) - 8 = 19$

$x =$ .....

Question 130

The volume of the cuboid is 225cm^3.

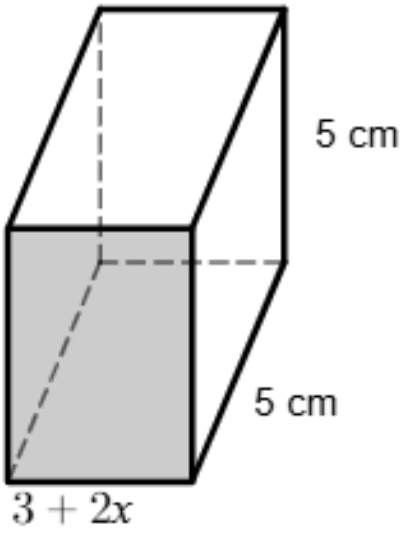
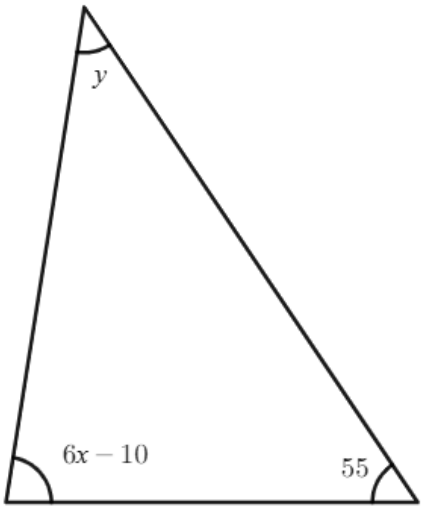


*Diagram **not** accurately drawn.*

Form an equation and find the value of x.

$x =$ .....

Question 131



Write an expression for y in terms of x.

$y =$ .....

Question 132

Solve:

$x^2 - 9x + 18 = 0$

$x =$ .....

or $x =$ .....

Question 133

Solve:

$36x^2 - 144 = 0$

$x =$ .....

or $x =$ .....

Question 134

Solve the following quadratic equation, giving your answer accurate to 2 decimal places:

$3x^2 - 9x + 6 = 0$

$x =$.....

or $x =$.....

Question 135

It can be shown that $x^2 - 20x + 81 \equiv (x - 10)^2 - 19$

Use this to solve the equation $x^2 - 20x + 81 = 0$

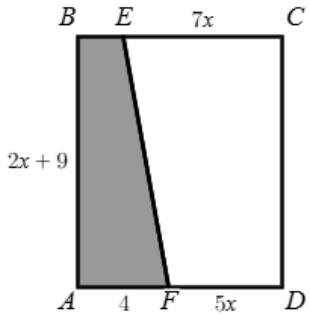
Give your solutions in surd form as simply as possible.

$x =$.....

or $x =$.....

Question 136

The diagram shows rectangle $ABCD$.
BEC and AFD are straight lines.
All measurements are in cm.



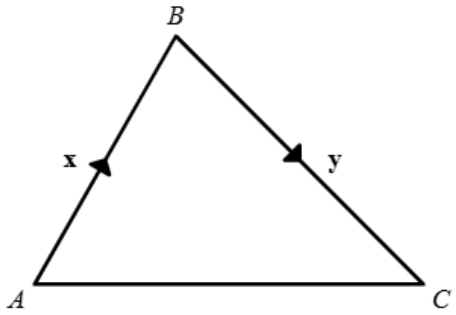
The area of the trapezium $ABEF$ is 35 cm^2
Determine the value of x.

$x =$ ..... cm

Question 137

ABC is a triangle.

Express $\overrightarrow{CA}$ in terms of x and y.

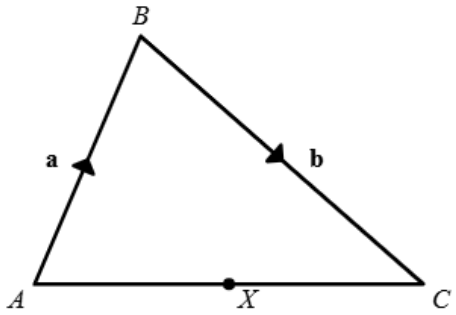


$\overrightarrow{CA} =$ .....

Question 138

The point X is the midpoint of CA.

Express $\overrightarrow{AX}$ in terms of a and b.



$\overrightarrow{AX} =$ .....

Question 139

Given that p and q are not parallel, determine if the vectors

$7\,p\, +\, 2\,q$ and $-30\,p\, -35\,q$

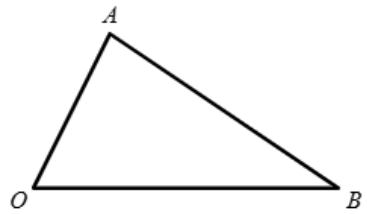
are parallel.

The vectors are parallel [ ]

The vectors are not parallel [ ]

Question 140

The diagram below shows a sketch of triangle OAB



The point C is such that $OA : AC = 3 : 1$

The point M is the midpoint of AB

The straight line through C to M cuts OB at the point N

Let $\overrightarrow{OA} = a$ and $\overrightarrow{OB} = b$

By first finding $\overrightarrow{CM}$ in terms of a and b, and letting $\overrightarrow{CN} = \lambda\ \overrightarrow{CM}$, find $ON : NB$.

..... : .....

Question 141

The nth term of a sequence is $3n - 3$

Work out the 9th term of the sequence.

.....

Question 142

Find the nth term of the sequence.

$8, 0, -8, -16, \ldots$

nth term = ...

Question 143

The first three terms of a **Fibonacci** sequence are shown below.

$p \ , \ p - 2q \ , \ 2p - 2q \ , \ \ldots \ , \ \ldots \ , \ \ldots \ , \ \ldots$

Find a simplified expression for the 7th term of the sequence.

.....

Question 144

Here are the first five terms of a quadratic sequence

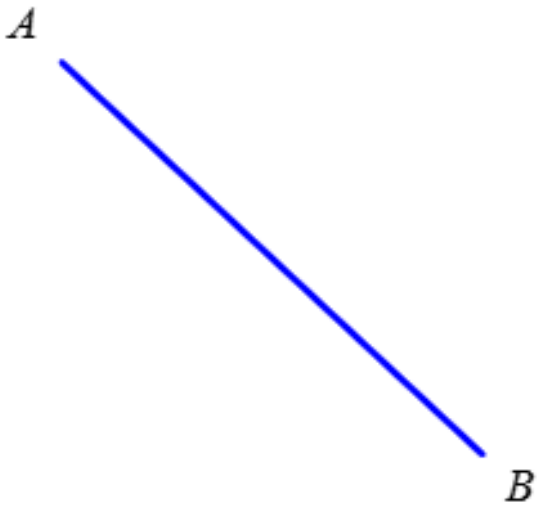
$1 - 14 - 39 - 74 - 119$

Find an expression, in terms of n, for the nth term of the sequence.

.....

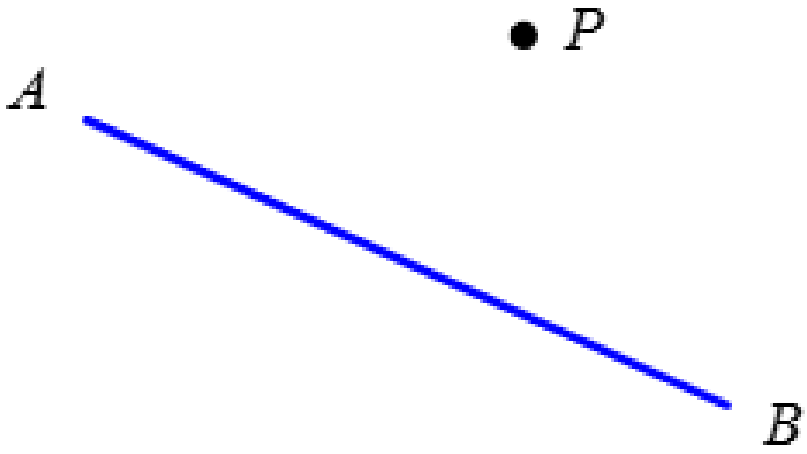
Question 145

Construct the perpendicular bisector of the line segment AB.



Question 146

Construct a line perpendicular to the line segment AB, passing through the point P.

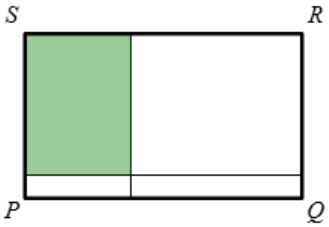


Question 147

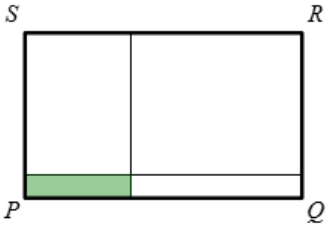
The diagrams below shows the rectangle $PQRS$ where $PQ = 13$ cm and $PS = 7$ cm.

Select the diagram that shows the locus of the points that are more than 1 cm away from PQ and more than 5 cm away from PS.

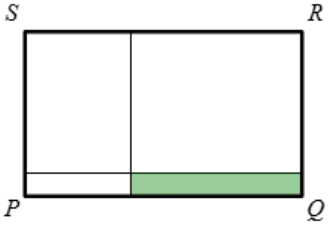
Option 1



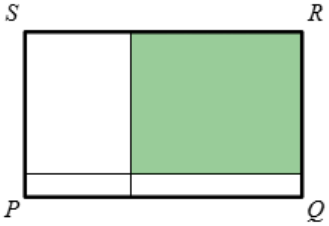
Option 2



Option 3



Option 4

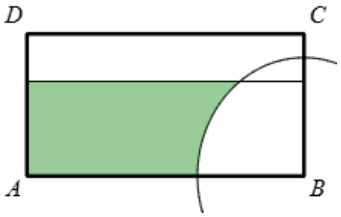


Question 148

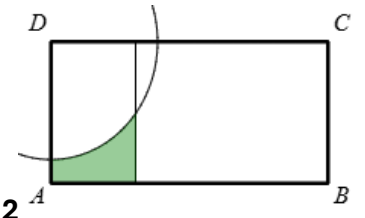
The diagrams below shows the rectangle $ABCD$ where $AB = 13$ cm and $AD = 6$ cm.

Select the diagram that shows the locus of the points that are less than 4 cm away from AD and more than 5 cm away from D.

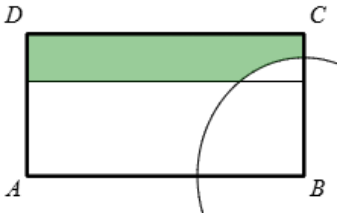
Option 1



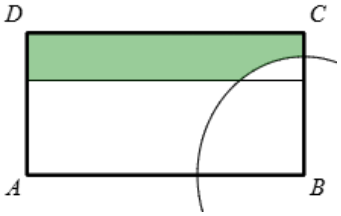
Option 2



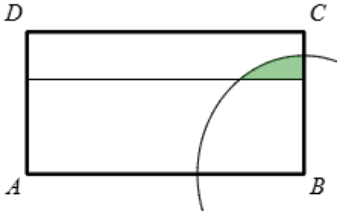
Option 3



Option 4



Option 5



Option 6