

1st September

Corbettmaths

Factorise $4y^2 - 9w^2$

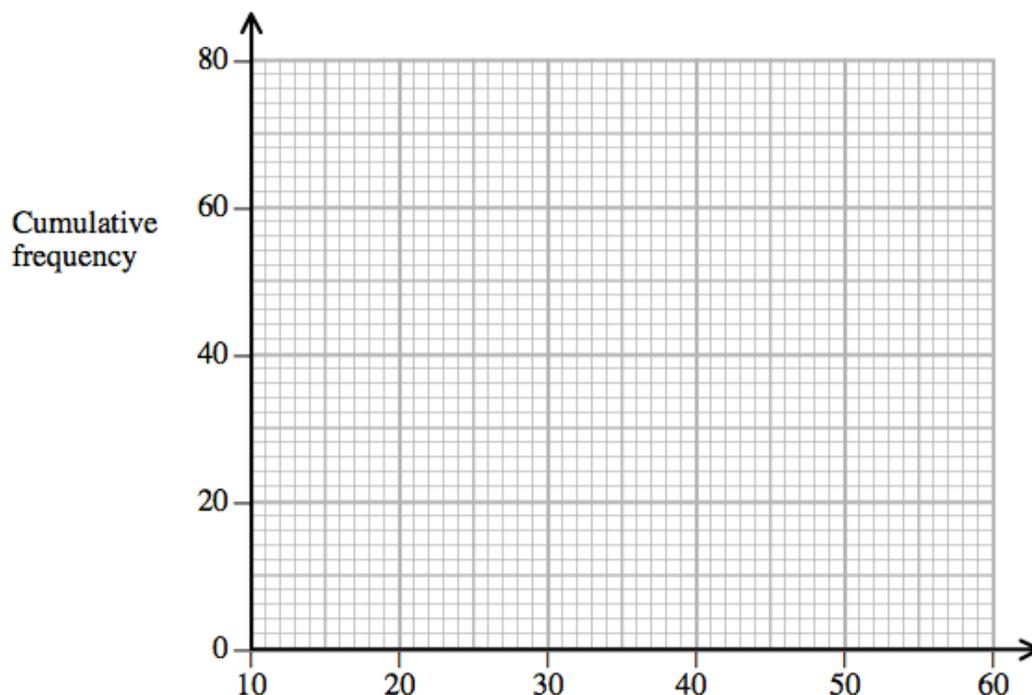
Calculate the distance between the coordinates (1, 3) and (3, 8).

Give your answer correct to 1 decimal place.

Age	Frequency
$10 < t \leq 20$	12
$20 < t \leq 30$	20
$30 < t \leq 40$	34
$40 < t \leq 50$	11
$50 < t \leq 60$	3

(a) Draw a cumulative frequency graph

(b) Using the curve, estimate the median.



2nd September



Corbettmaths

$$a^b = 1$$

Write down three possible pairs of values for a and b.

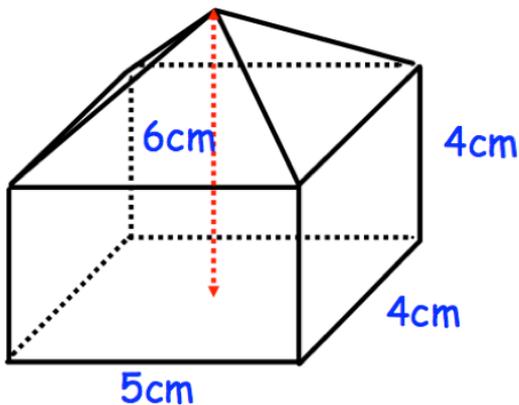
The values of a must be different in each answer.
The values of b must be different in each answer.

Factorise $2w^2 - 9w + 4$

Declan ran a distance of 200m in a time of 26.2 seconds.

The distance of 200m was measured to the nearest 10 metres.
The time of 26.2 was measured to the nearest tenth of a second.

Work out the upper bound for Declan's average speed.



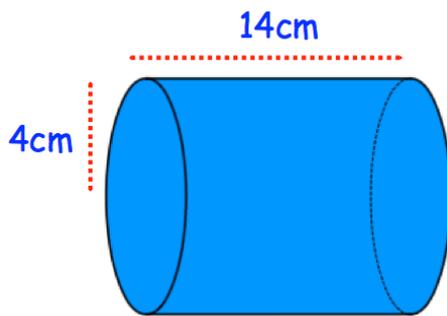
Shown is a solid made from a pyramid and a cuboid.

Find the volume of the solid.

3rd September



Corbettmaths



Calculate the surface area

Line 1: $y = 3x + 1$

Line 2: $y = 2x - 3$

Line 3: $3y + x = 6$

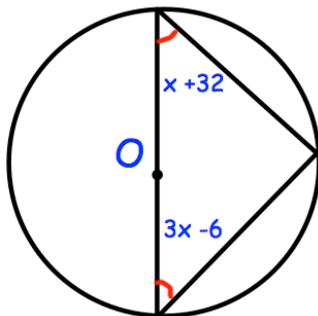
Line 4: $y = \frac{1}{3}x - 1$

Which lines are perpendicular?

$$W^0 \quad W^3 \quad \frac{W^3}{W^4} \quad W^{-2}$$

W is greater than 1.

Write in ascending order.



Find x

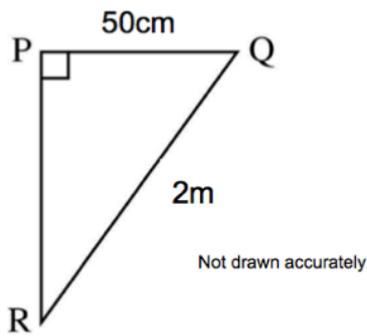
The volumes of two mathematically similar solids are in the ratio 8 : 125
The surface area of the smaller solid is 24 cm²

Work out the surface area of the larger solid.

4th September



Corbettmaths



Calculate the length of PR.

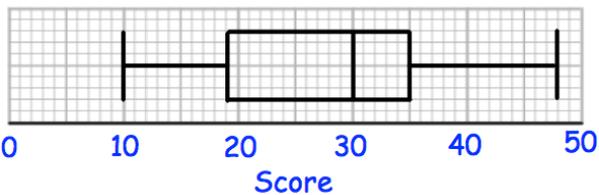
W is inversely proportional to A squared.

When $W = 10$, $A = 2$.

Find W when $A = 4$.

Work out

$$25^{1/2} \div 2^{-2}$$



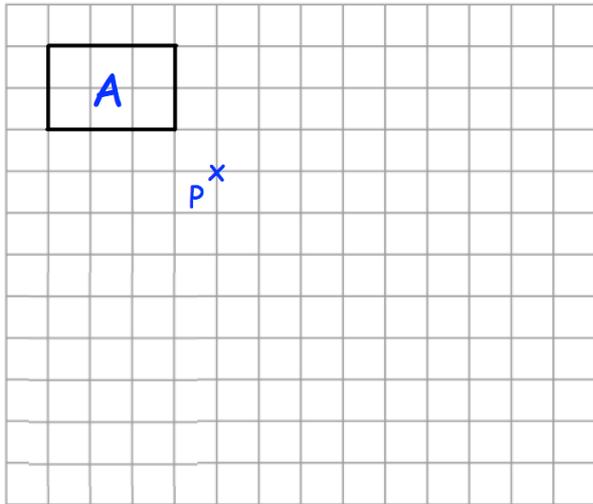
Write down the interquartile range

Expand $\sqrt{10} (5 + \sqrt{10})$

5th September



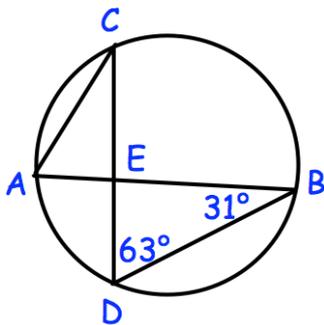
Corbettmaths



Enlarge shape A by scale factor -1.5 , using the point P as centre of enlargement.

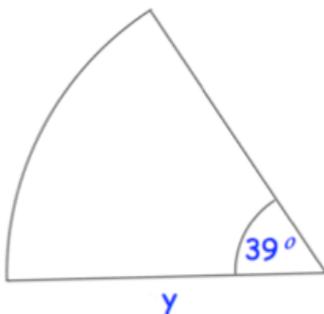
Helen is taking part in a quiz on TV.
The probability she answers a question correctly is $\frac{3}{5}$
Helen is asked two questions

Calculate the probability she answers both questions incorrectly.



Find angles
ACD

AEC



The area of the sector is 10cm^2 .
Find y.

6th September



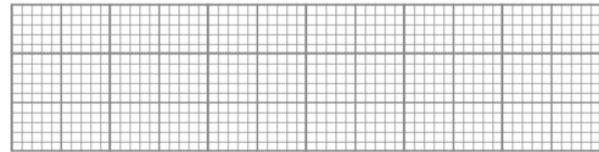
Corbettmaths

The ages of 15 rugby players are:

23 26 30 29 30

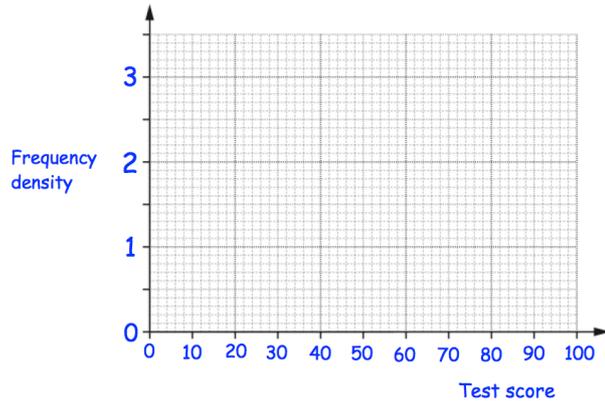
29 26 25 22 23

31 33 19 27 26

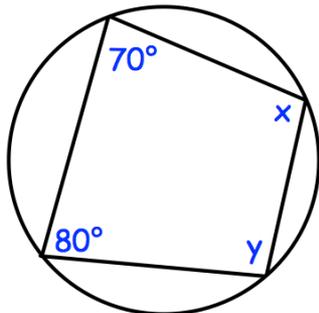


Draw a box plot to show this information

Test score, x	Frequency
$0 < x \leq 30$	15
$30 < x \leq 40$	22
$40 < x \leq 50$	28
$50 < x \leq 70$	30
$70 < x \leq 100$	9



Draw a histogram for this data.



Find x and y

w is inversely proportional to c squared.

When $w = 400$, $c = 2$.

Find w when $c = 4$.

7th September

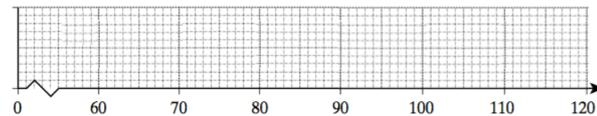
Corbettmaths

The points A(3, 5) and C(12, 2) are points on the straight line ABC.

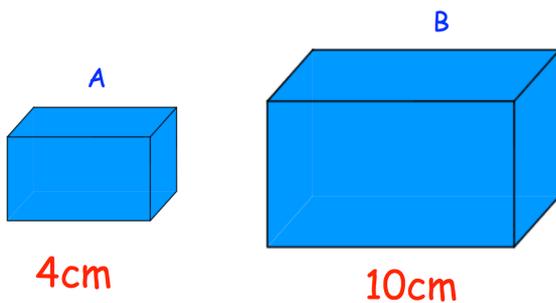
$$AB:BC = 2:1.$$

Work out the coordinates of B

A students in a class complete a puzzle.
 The longest time taken was 110 seconds.
 Median time taken to complete the puzzle was 85 seconds
 The range was 54 seconds.
 The lower quartile was 75 seconds.
 The interquartile range was 30 seconds



Complete the box plot



Cuboids A and B are similar.
 The volume of cuboid A is 50cm^3 .
 Work out the volume of cuboid B.

A is inversely proportional to N^2

When $A = 10$, $N = 2$.

Find A when $N = 4$.

Line 1 has gradient 4 and passes through the point (2, 9).

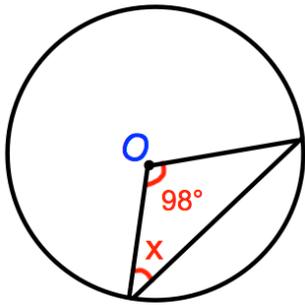
What is its equation?

Write down the equation of a line perpendicular to line 1.

8th September

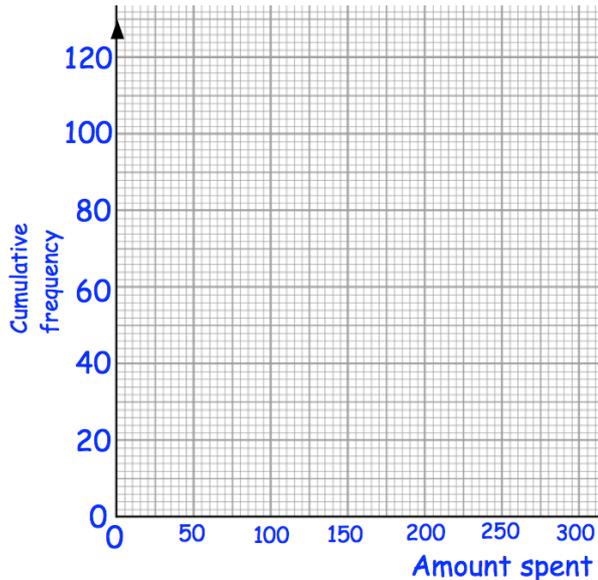


Corbettmaths



Find x

Amount spent, £ x	Cumulative frequency
$0 < x \leq 50$	6
$0 < x \leq 100$	30
$0 < x \leq 150$	80
$0 < x \leq 200$	100
$0 < x \leq 250$	112
$0 < x \leq 300$	120



Draw a cumulative frequency diagram

Use your diagram to estimate the median

Use your diagram to estimate the interquartile range.

A fair spinner has five sections of equal size, numbered 1 to 5. The spinner is spun twice and the scores are added together.

Find the probability of a total score of 9.

9th September

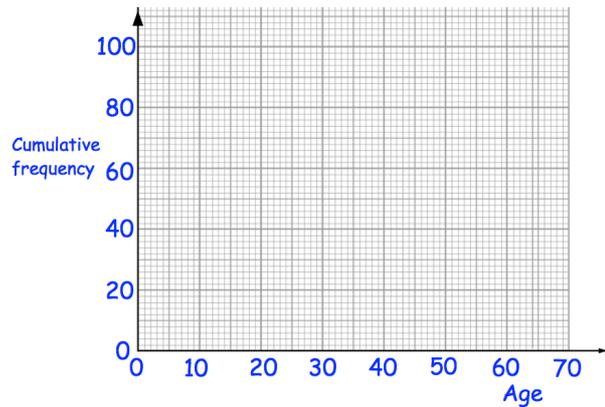


Corbettmaths

Factorise

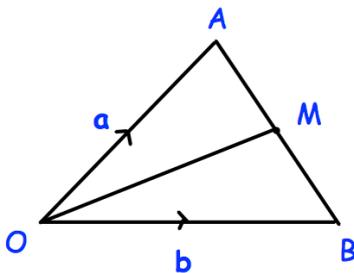
$$x^2 - y^2$$

Age, x years	Frequency	Cumulative frequency
$20 < x \leq 30$	12	
$30 < x \leq 40$	30	
$40 < x \leq 50$	28	
$50 < x \leq 60$	22	
$60 < x \leq 70$	8	



(a) Complete the cumulative frequency column in the table.

(b) Draw a cumulative frequency graph for this information.



M is the midpoint of AB

Find the vector



Line 1 has gradient 4 and passes through the point (3, 10).

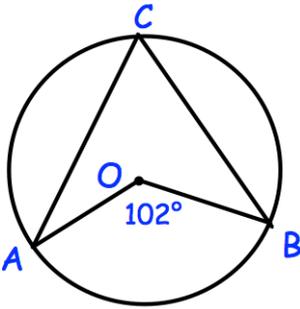
What is its equation?

Write down the equation of a line perpendicular to line 1.

10th September



Corbettmaths



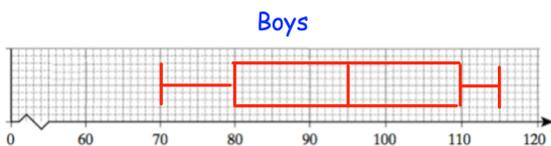
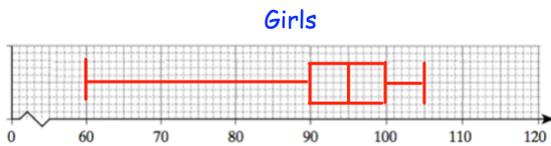
O is the centre of the circle.
Find the size of angle ACB.

Solve $2x^2 - 19x + 35 = 0$

$a(w + s) = e$

Rearrange to make w the subject.

20 girls and 20 boys sit a test.
The box plots show information about their results.

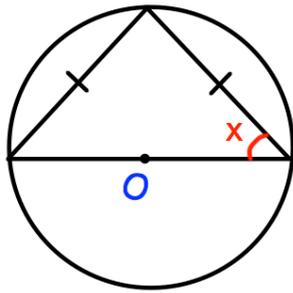


Work out the interquartile range for the girls.

Compare the distributions for the boys' results and girls' results.

11th September

Corbettmaths

Find x

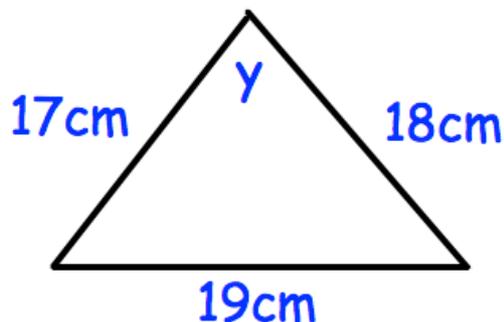
Arrange in order, smallest to largest

$$25\frac{1}{2}, 8\frac{2}{3}, 27\frac{1}{3}$$

A plant was 30cm tall when bought.
This type of plant grows 22% each year.

How many years will it take the plant
to grow to at least 2 metres?

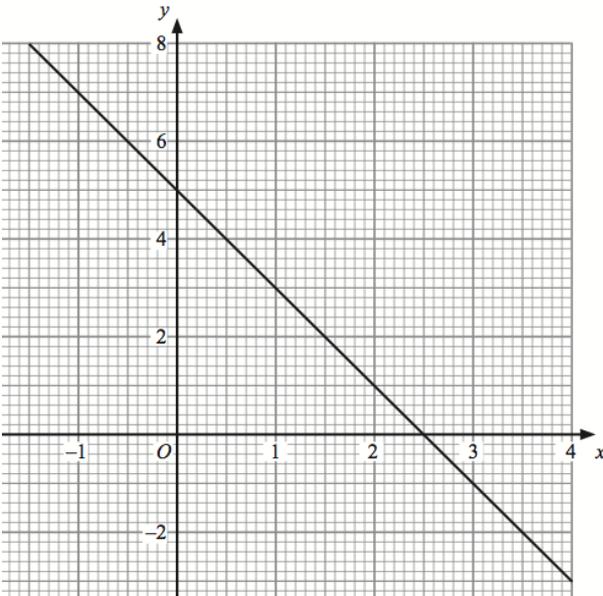
Find the equation of the line
perpendicular to $y = -2x + 3$ that
passes through $(1, 10)$

Find y .

12th September



Corbettmaths

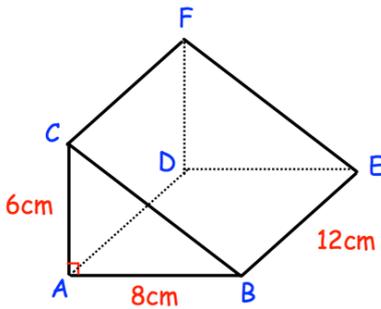


Find the equation of the line drawn.

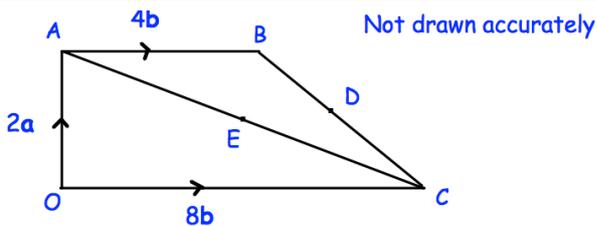
How many points of intersection does the line shown and $y = x^3$ have?

Solve, giving your answers to one decimal place.

$$3x^2 - 10x + 4 = 0$$



Calculate the length of BF



Point D is the midpoint of BC.
Point E is the midpoint of AC.

Write down a vector for \vec{OB}

13th September

Corbettmaths

Work out

$$125^{\frac{1}{3}} \times 2^{-3}$$

A regular polygon has interior angles that are 5 times larger than each of its exterior angles.

Calculate how many sides it has.

The line L passes through the points $(-2, 1)$ and $(2, 3)$.
The line N passes through the points $(4, 7)$ and $(12, 11)$.

Bryan says that the lines L and N are parallel.

Is Bryan correct? Explain your answer.

Solve

$$\frac{x+1}{2} + \frac{2x-1}{4} + \frac{x+2}{3} = 1$$

The number of days, D, to complete research is inversely proportional to the number of researchers, R, who are working.

The research takes 125 days to complete if 16 people work on it.

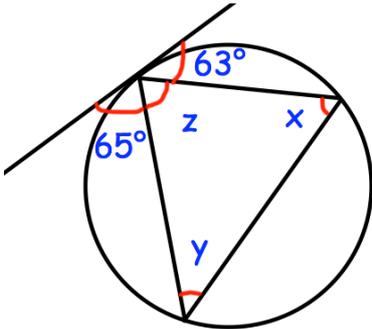
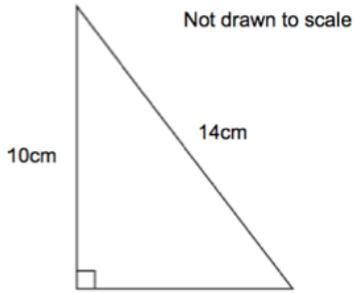
Find how many people are needed to complete the research in 40 days.

14th September

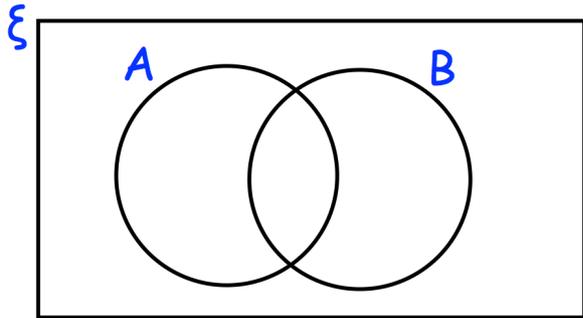


Corbettmaths

Calculate the area



Find x , y and z



Complete the Venn diagram

$\xi = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15\}$

A = multiples of 3

B = multiples of 5

One of the numbers is selected at random.

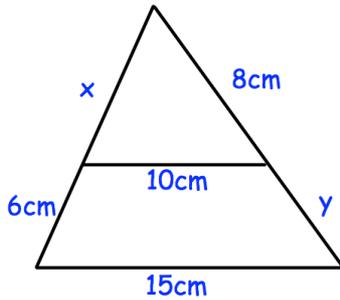
Write down $P(A \cup B)$

ABC is a straight line.
 A has coordinates $(1, -3)$
 C has coordinates $(13, 6)$
 AB:BC is 2:1

Find the coordinates of point B

15th September

Corbettmaths

Find x and y .

Calculate bearing of B from A.

A is directly proportional to the cube root of B.

When $A = 90$, $B = 27$.

Find A in terms of B.

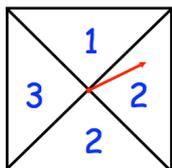
The pressure of a football is 500 grams per square centimetre.

Given

1 pound = 0.4536 kilograms

1 inch = 2.54 centimetres

Work out the pressure in pounds per square inch.



The spinner is spun three times.

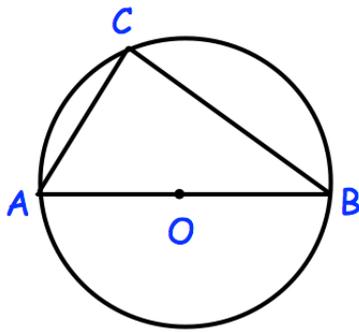
The three numbers are added together to give a score.

Find the probability the score is even.

16th September



Corbettmaths

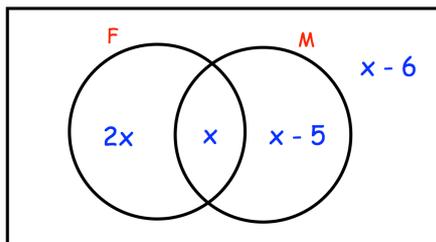


AB is 20cm.
AC is 12cm.

Find the size of BC.

Simplify

$$\sqrt{8}$$

 ξ

 $\xi = 89$ stamps in a collection

F = French stamps

M = Modern stamps

Find how many French stamps there are.

A swimming pool has surface area 300m^2
The swimming pool is a prism of depth 110cm.

Work out the volume of the swimming pool.
Give your answer in m^3 .

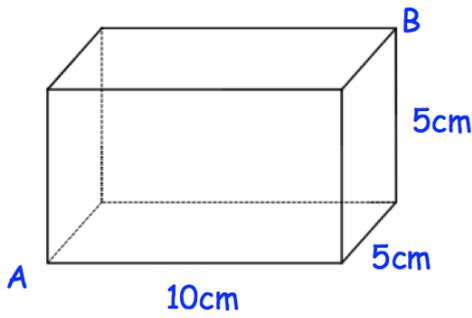
A scale model of the swimming pool is made.
The depth of the model swimming pool is 5.5cm

Find the surface area of the model swimming pool.

17th September



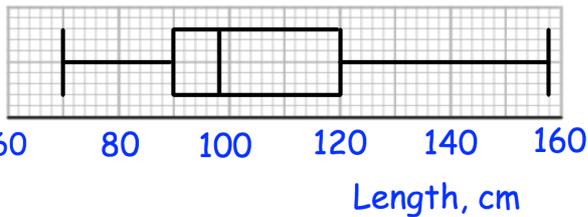
Corbettmaths



Work out the distance AB.

Expand and simplify

$$(x - 2)(x - 3)(x - 4)$$



Work out the range

Work out the interquartile range

What percentage of trees are taller than 120cm?

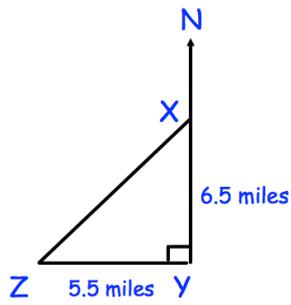
Victor is y years old.
His brother Fred is four years old than Victor.
The product of their ages is 780.

Set up an equation to represent this information and solve to find Fred's age.

18th September



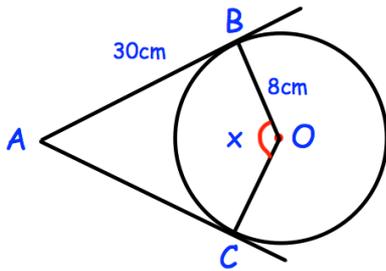
Corbettmaths



Calculate the distance XZ.

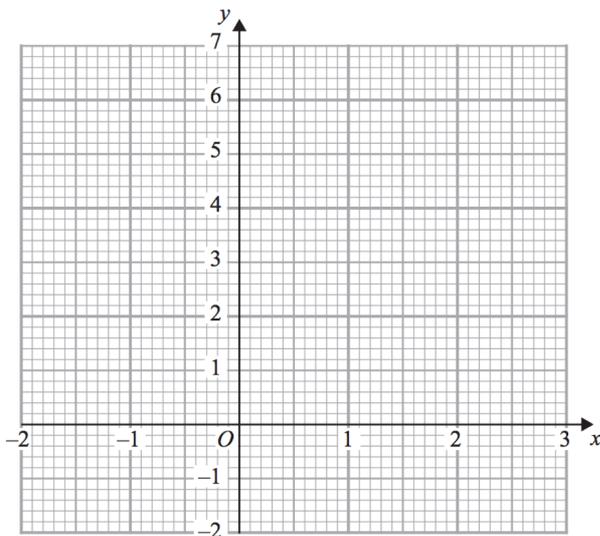
What is the bearing of Z from X?

What is the bearing of X from Z?



Find x

On the grid, draw the graph of $y = x^3 - 2x + 3$ for the values of x $-2 \leq x \leq 2$

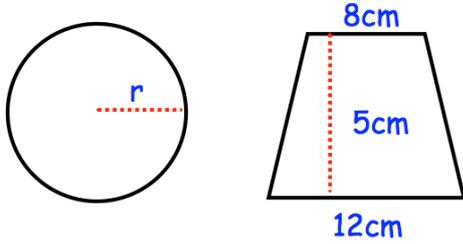


19th September



Corbettmaths

The trapezium and circle have the same area. Find r .



Simplify $\sqrt{1000}$

Simplify

$$3\sqrt{2} \times 3\sqrt{14}$$

An average clementine weighs 74g to the nearest gram.
A net contains 12 clementines.
The net weighs 20g to the nearest gram.

What is the maximum possible weight of the net of clementines.

Complete the table of value for

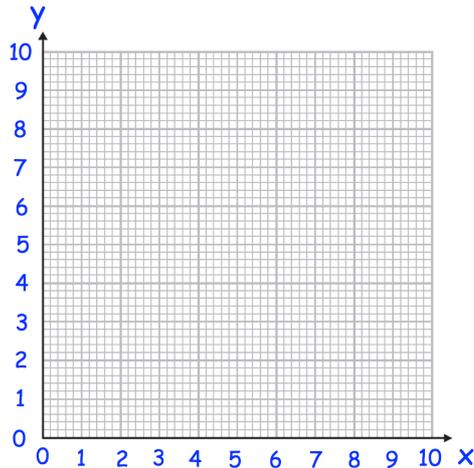
$$y = \frac{4}{x}$$

x	0.5	1	2	4	8	10
y						

On the grid, draw the graph of

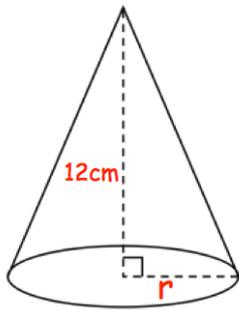
$$y = \frac{4}{x}$$

for $0.25 \leq x \leq 10$



20th September

Corbettmaths



The volume of the cone is 400cm^3
Find r .

A gym runs two fitness classes, spinning and circuits.

On Saturday 100 people visited the gym.
18 people attended the spinning class.
10 people attended both classes.
56 people did not attend either class.

Represent this information on a Venn diagram

§



A person who attended the gym is selected at random.

Find the probability that this person attended only one class.

Simplify

$$81^{\frac{3}{4}}$$

Simplify

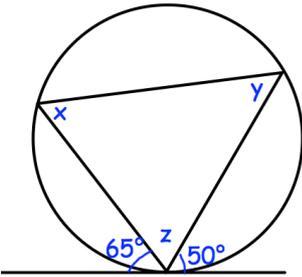
$$(9x^4)^{\frac{3}{2}}$$

Write $0.2545454\dots$ as a fraction

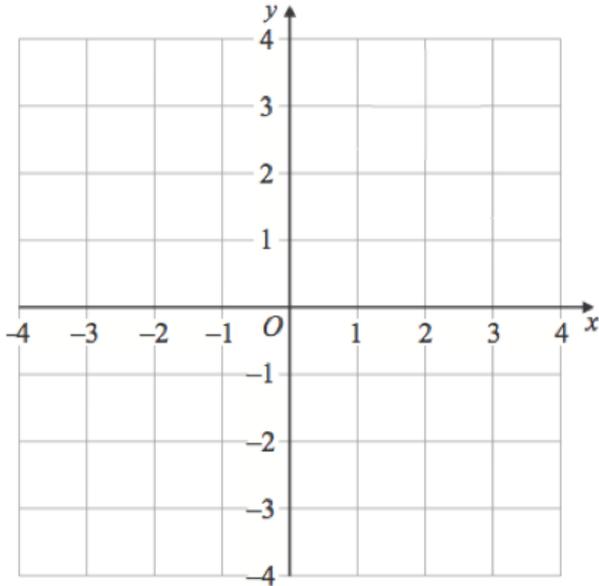
21st September



Corbettmaths

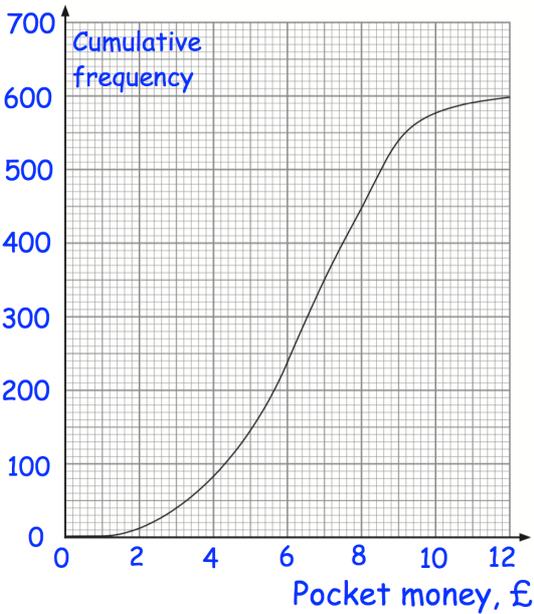


Find x , y and z .



Show the region which satisfies

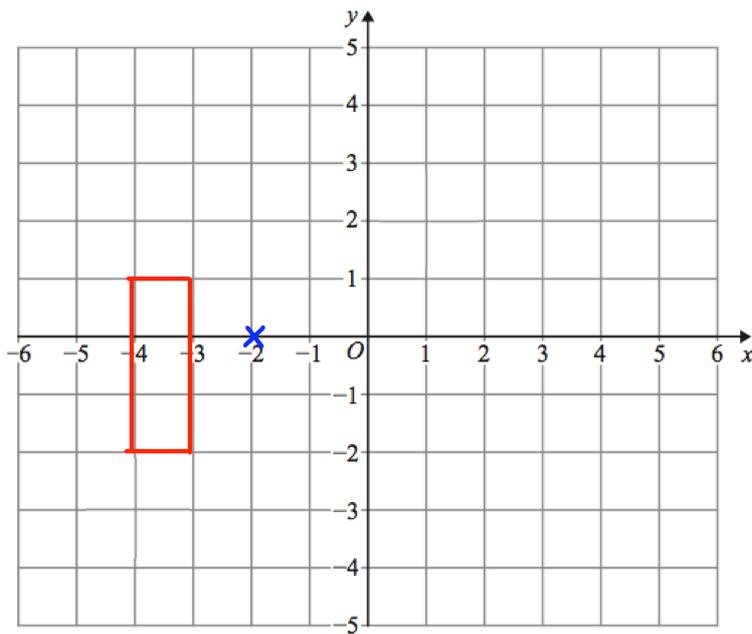
$$\begin{aligned} x + y &< 3 \\ x &> 1 \\ y &> 0 \end{aligned}$$



Find an estimate of the median

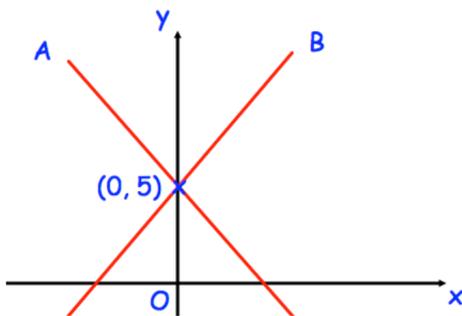
Find an estimate of the interquartile range

22nd September



Enlarge the rectangle by scale factor -2, centre of enlargement (-2, 0)

At a football match, the ratio of women to men is 2:3.
 The ratio of women to children is 7:6.
 What percentage of the people at the rugby match are men?



The lines A and B are perpendicular.
 Both lines pass through the point (0, 5)
 The gradient of line A is $-\frac{3}{4}$
 Write down the equation of line B

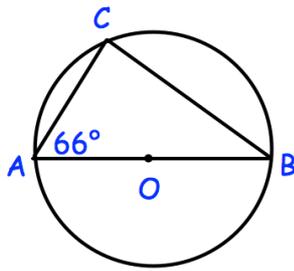
Simplify

$$\frac{x^2 - 2x - 8}{x^2 + 6x - 40}$$

23rd September



Corbettmaths



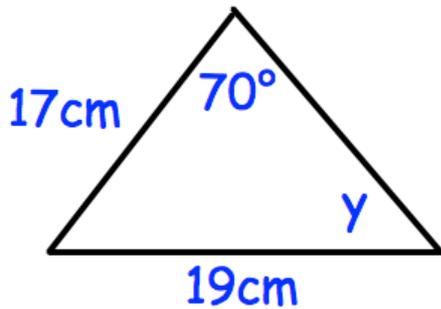
AOB is the diameter of the circle.

Find the size of angle ACB.

Find the size of angle ABC.

Factorise

$$25y^2 - 9w^2$$

Find y .

Solve, giving your answers to one decimal place.

$$4x^2 - 9 = 2x^2 + 4x$$

Expand $\sqrt{6}(2 - \sqrt{3})$

24th September



Corbettmaths

Simplify

$$\sqrt{20}$$

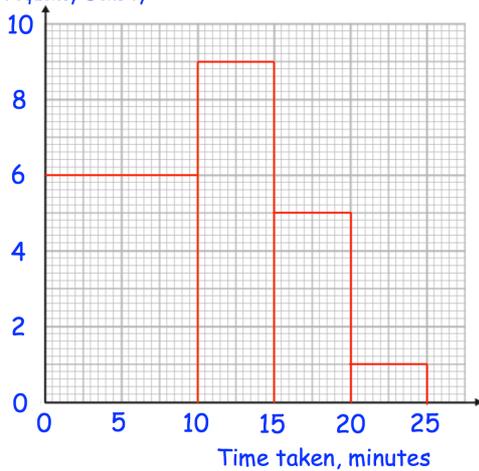
A field is 3 metres longer than wide.

The width of the field is x metres.

The area of the field is 20m^2

Find x .

Frequency Density

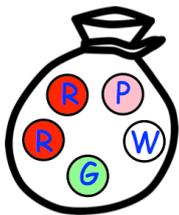


Complete the frequency table

Time taken, minutes	Frequency
$0 < t \leq 10$	
$10 < t \leq 15$	
$15 < t \leq 20$	
$20 < t \leq 25$	

The histogram shows information about the time taken to travel to school by students.

Work out an estimate of the number of students that take under 5 minutes to travel to school.



A game is played where a disc is removed, the colour noted and it is **replaced**. Then another disc is removed and the colour noted.

Calculate the probability that the two discs removed are the **same** colours

25th September

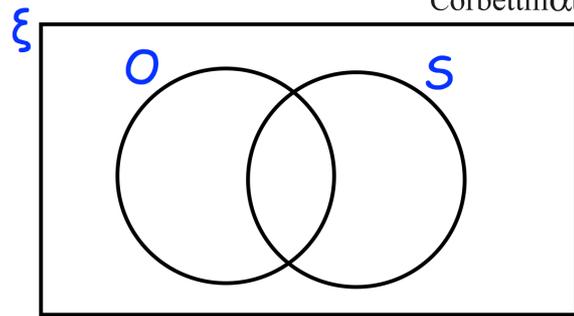
Corbettmaths

$$\xi = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13\}$$

O = odd numbers

S = square numbers

Complete the venn diagram



Write down $P(O \cup S)$

Write down $P(O \cap S)$

y is directly proportional to the square of x .

When $y = 45$, $x = 3$.

Find the value of y when $x = 6$.

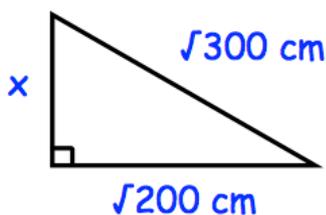
The price of a computer is reduced by 40%.

A week later it is reduced by another 10%.

Rosie says that the computer has been reduced by 50% in total.

Is Rosie right?
Explain your answer.

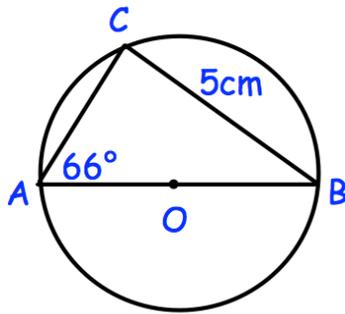
Find x



26th September

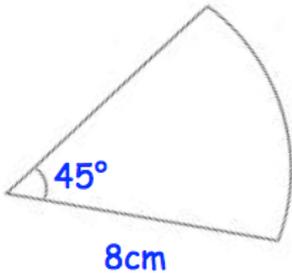


Corbettmaths



Find the diameter AB.

Find the perimeter of the sector.

Factorise fully $24y^2 - 6$ Make w the subject of

$$w - 4 = \frac{3w - 5}{t}$$

Solid A and Solid B are mathematically similar.

The ratio of the surface area of solid A to the surface area of solid B is 25:4

The volume of solid B is 120cm^3 .

Find the volume of solid A.

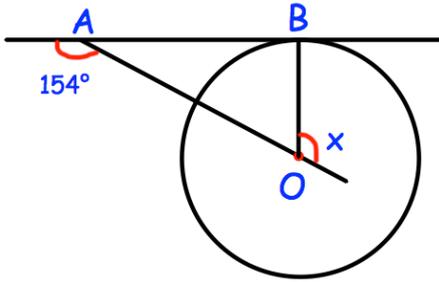
27th September



Corbettmaths

Solve, giving your answers to one decimal place.

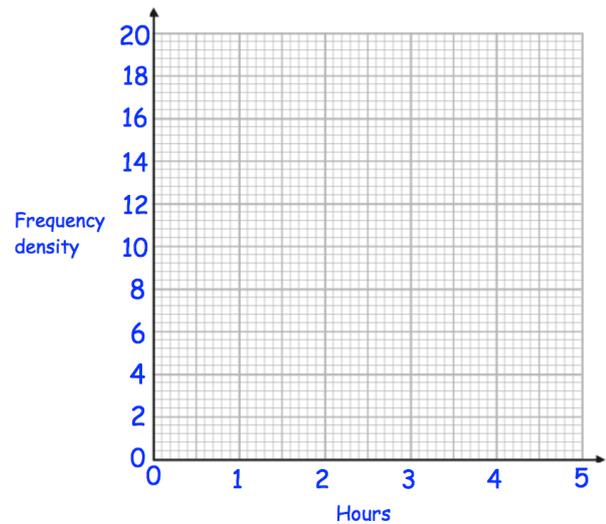
$$7x^2 - 6x + 1 = 0$$



Find x

Waiting time, h	Frequency
$0 < h \leq 0.5$	8
$0.5 < h \leq 1$	10
$1 < h \leq 1.5$	7
$1.5 < h \leq 3$	9
$3 < h \leq 5$	6

Draw a histogram for this data.



A is directly proportional to the square root of B.

When $A = 120$, $B = 4$.

Find A in terms of B.

28th September



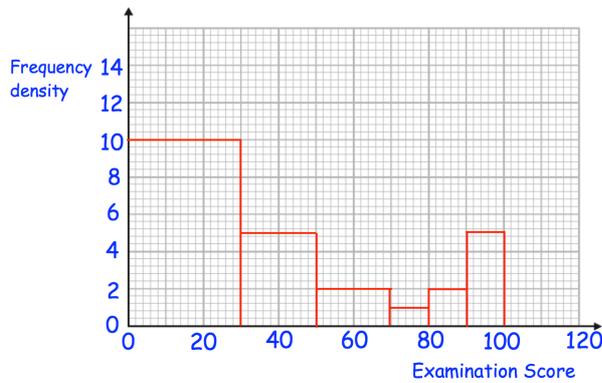
Corbettmaths

Evaluate

$$1000^{\frac{1}{3}}$$

Mr Smith has drawn a histogram to represent his classes' examination scores.

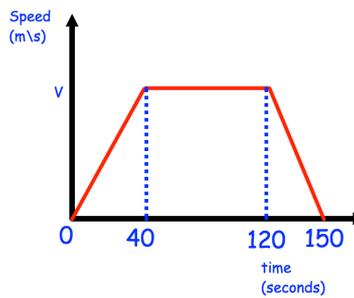
Can you explain what Mr Smith has done wrong?



Examination score	Frequency
$0 < s \leq 30$	3
$30 < s \leq 50$	4
$50 < s \leq 70$	10
$70 < s \leq 80$	10
$80 < s \leq 90$	5
$90 < s \leq 100$	2

Shown is a speed-time graph. The total distance travelled is 4.6km

Find V.



Solve

$$\frac{9}{x+2} = x + 2$$

29th September

Corbettmaths

Where does the line $y = 2x + 5$ cross the x-axis?

A biased coin is flipped twice.

The probability of the coin landing on tails is 0.7

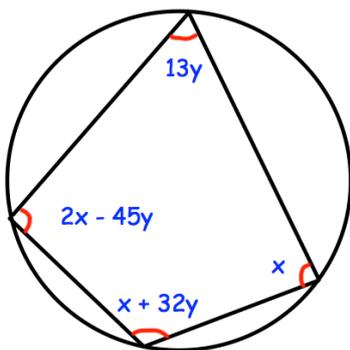
Find the probability the coin lands on heads twice.



Simplify

$$\frac{x}{5} + \frac{3x}{7}$$

Write 0.411111... as a fraction



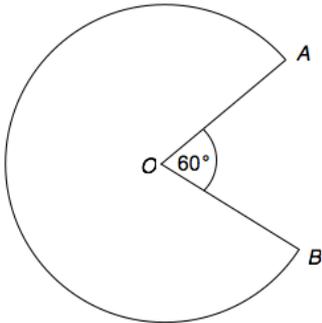
Find x and y

30th September

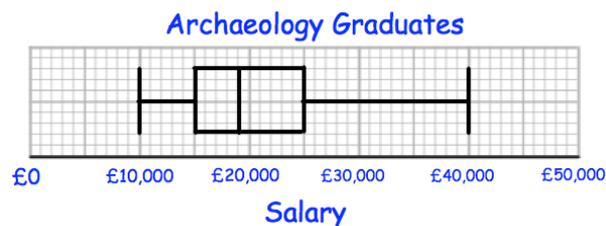
Corbettmaths

Work out the equation of the line passing through A (0, 1) and B (2, 4).

Write down the equation of the line perpendicular to AB and passing through (0, 7)



Angle AOB is 60° and OA is 10cm. Find the perimeter of the sector.



Write down the value of the range

Solve

$$\frac{x}{2} + \frac{4x + 1}{10} = -8$$

Material A has a density of 5.8g/cm^3 .
Material B has a density of 4.1g/cm^3 .

377g of Material A and 1.64kg of Material B form Material C.

Work out the density of Material C.