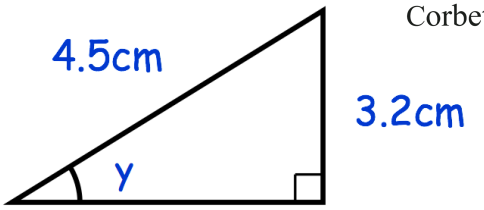
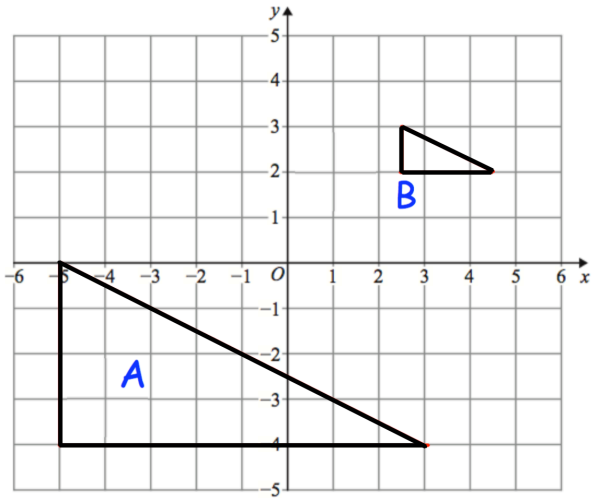
1st August **Foundation Plus 5-a-day**

Corbettmaths

Calculate angle y





Describe fully the single transformation that maps triangle A onto triangle B.

Translate triangle B by $\begin{pmatrix} -5 \\ 1 \end{pmatrix}$

There are three colours of beads in a bag.

The ratio of red to yellow beads is 8:3

The ratio of green to yellow beads is 9:2.

What fraction of the beads are green?

Work out the reciprocal of 20.
Give your answer as a decimal

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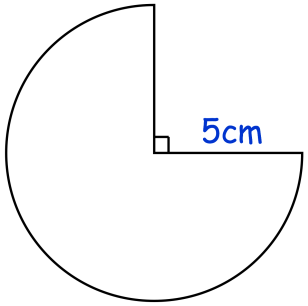
2nd August **Foundation Plus 5-a-day**

Corbettmaths

Calculate the area of this sector.



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

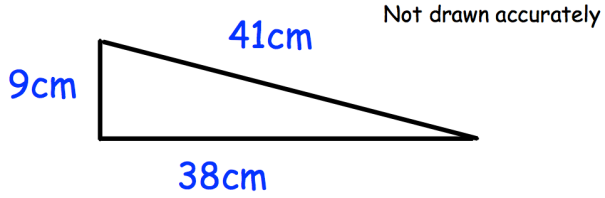
$$D = \frac{240}{R}$$

Work out how long it would take to complete the research if there were 8 researchers.

How many researchers would be needed to complete the research in 15 days?

The density of Nitrogen is 1.25×10^{-6} kg/cm³

Calculate the mass of one cubic metre of Nitrogen.



Is this triangle a right angled triangle?

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3rd August **Foundation Plus 5-a-day**

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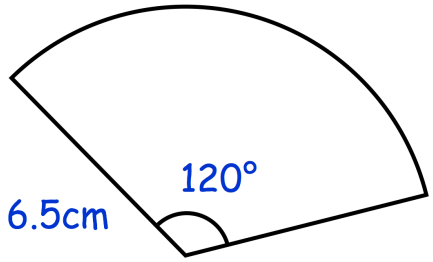
Solve $(x + 1)(x + 12) = 0$

Calculate the perimeter of the sector.



150 students in Years 10 and 11 visit a school canteen.

Some students have packed lunches.
Some students have a cooked lunch.

56 out of the 89 students who have packed lunch are in Year 10.
There are 72 Year 11 students.

Work out how many Year 10 students have a cooked lunch.

In a sale, a shop reduces all its prices by 30%.
On the last day of the sale, the shop reduces the sale prices by 10%

On the last day of the sale, a mobile phone costs £516.60

How much was the mobile phone before the sale?

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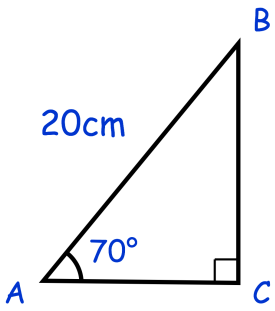
4th August	Foundation Plus 5-a-day
Solve $\frac{4(x-2)}{3} = 5 - 2x$	
	Find the length of side AC.
Solve the simultaneous equations $2x - 5y = 1$ $8x + 3y = 73$	
Find the volume of a piece of wood that has a mass of 600g and density of 0.75g/cm³	
A number, c, has been rounded to two decimal places. The answer is 0.74 Write down the error interval for c.	

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5th August **Foundation Plus 5-a-day**

Corbettmaths

Write in standard form

1800×10^9

Write in standard form

0.0000000000034

In the space below, draw a 80° angle.
Construct the angle bisector.

The circumference of a circle is 60cm.
Work out the area of the circle.

A rectangular field is 20 metres longer than wide.

The perimeter of the field is 280m.

Find the area of the field.

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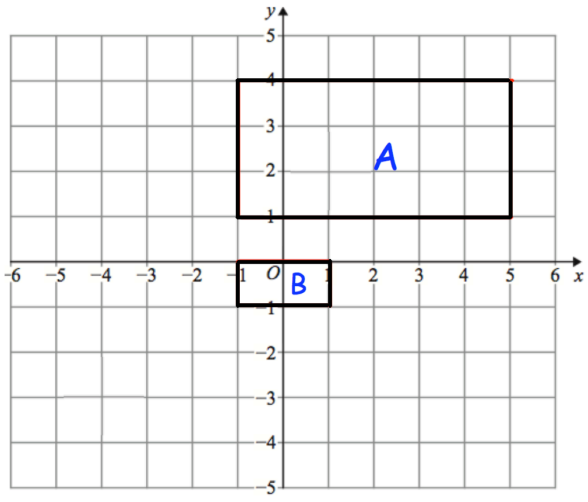
6th August **Foundation Plus 5-a-day**

Corbettmaths

Solve $x^2 - 5x - 84 = 0$

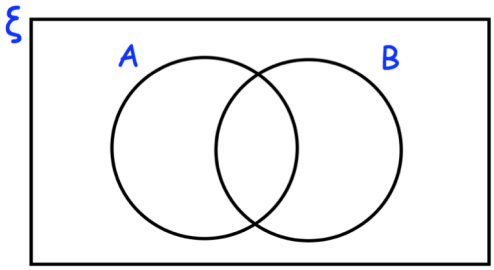
Describe fully the single transformation that maps shape A onto shape B.

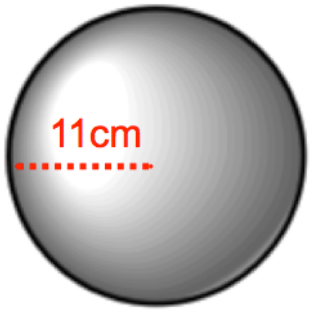


Rotate shape B 180° about the point (2, –2).

ξ = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12}
A = {numbers less than 6}
B = {prime numbers}

Draw a Venn diagram for this information.





A sphere has a radius of 11cm.
Calculate the volume of the sphere.
Give your answer to 1 decimal place.

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7th August **Foundation Plus 5-a-day**

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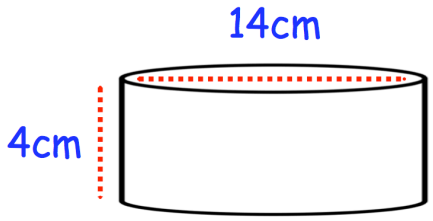


Calculate the volume.
Give your answer in terms of π

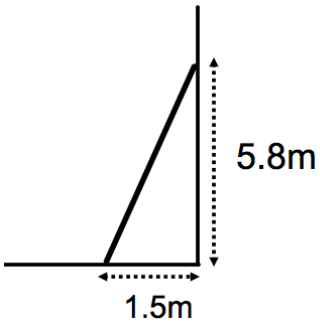
Expand and simplify $6(w+3)-2(w-5)$

6w + 18 - 2w - 10

= 4w + 8

Can you spot any mistakes?

Calculate the density of a piece of wood with a mass of 80g and a volume of 90cm³



A ladder is placed against a wall.
To be safe, it must be inclined at between 70° and 80° to the ground.

Is the ladder safe?

Calculate the length of the ladder.

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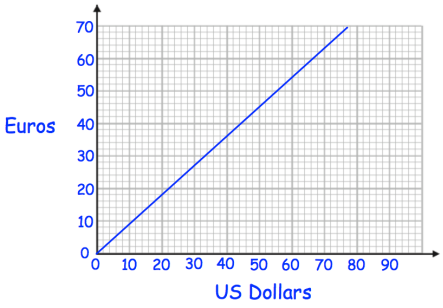
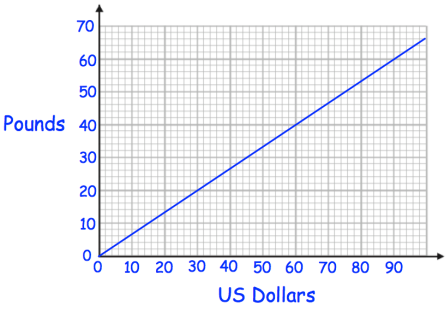
8th August **Foundation Plus 5-a-day**

Corbettmaths

Factorise $y^2 + 4y - 45$

Factorise $1 - x^2$





Rachel has £160 and $50.

Her hotel bill is €950.

How much more money does Rachel need to pay the hotel bill?

A cube with side length 8cm is placed on the ground. The pressure exerted on the ground is 4N/cm².

What force does the cube exert on the ground?

Five chairs and a table cost £240

Eight chairs and two tables cost £416

Find the cost of buying three tables and three chairs.

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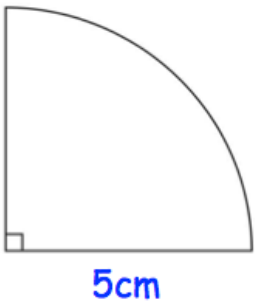
9th August **Foundation Plus 5-a-day**

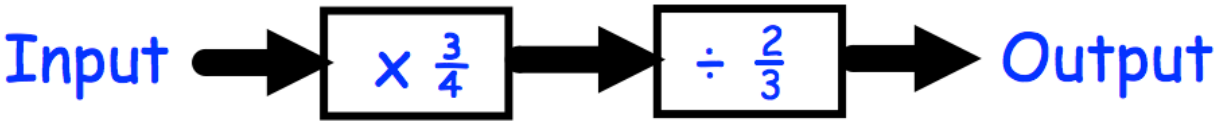
Corbettmaths

Calculate the perimeter of this quarter circle



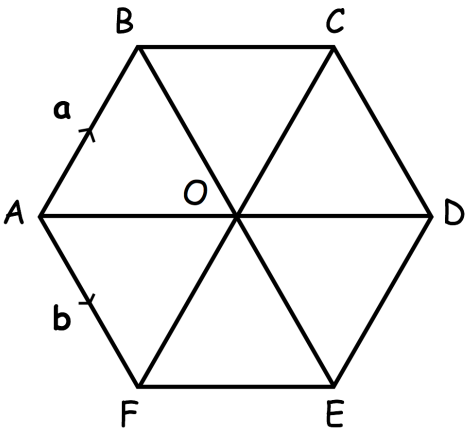
The mean of four numbers is 10.
Three of the numbers are 9, 11 and 7.

Work out the fourth number.



Find the output if the input is 5

ABCDEF is a regular hexagon, with centre O.



$\overrightarrow{AB} = \mathbf{a}$ $\overrightarrow{AF} = \mathbf{b}$

Express in terms of **a** and **b** the vector

$\overrightarrow{FC}$

Express in terms of **a** and **b** the vector

$\overrightarrow{AO}$

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10th August **Foundation Plus 5-a-day**

Corbettmaths

Simplify

$2a^3c^3 \times 3a^2c$

Shoe Size	Frequency
5	2
6	11
7	5
8	4
9	1

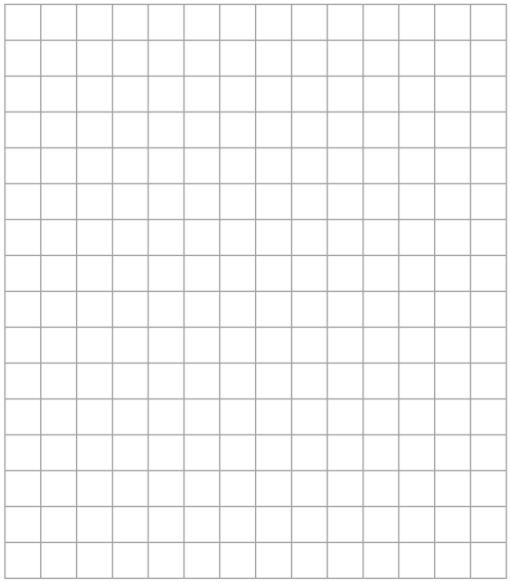
A student is picked at random.

Work out the probability that the student has a shoe size of 7 or smaller.

$y = x^3$

Complete the table of values and draw a graph

x	-2	-1	0	1	2
y					



Solve the simultaneous equations

$2x - 3y = 18$

$3x + y = 5$

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11th August **Foundation Plus 5-a-day**

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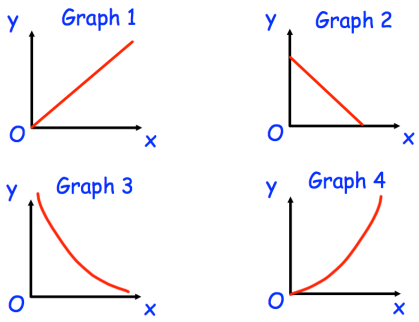
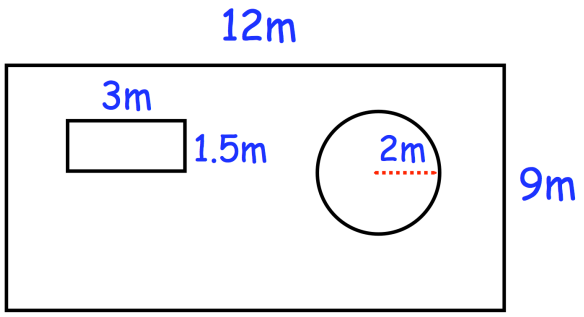
Make x the subject of

$$\sqrt[3]{\frac{2x}{y}} = w$$



One of the graphs shows that y is inversely proportional to x.

Which graph?



Belle wants to re-seed the grass in her garden.
The garden is 12 metres long and 9 metres wide.
There is a vegetable patch that is 3 metres long and 1.5 metres long.

There is a circular pond that has radius 2 metres.
The remainder of the garden is grass.
Each bag of grass seed costs £4.60 and covers 10m².
Work out the total cost to re-seed the garden.

The sum of Nita's age and Hannah's age is 102 years.
The difference between their ages is 52 years.
Hannah is younger than Nita.
Find the age of each woman.

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12th August **Foundation Plus 5-a-day**

Corbettmaths

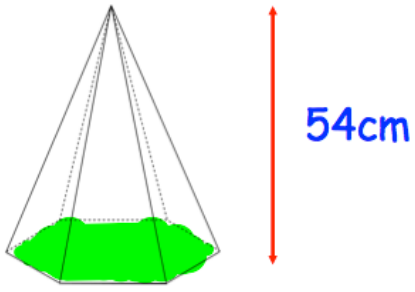
A company collected data about the number of internet enabled devices in each of 50 households.
The table shows the results.

Number of devices	Number of households
0	1
1	1
2	2
3	4
4	9
5	13
6	10
7	7
8	3

Work out the total number of internet enabled devices in these 50 households

Calculate the mean number of internet enabled devices per household.

A hexagon-based pyramid has a height of 54cm.
The volume of the pyramid is 1080cm³.
Calculate the area of the base of the pyramid.



The number, c, has been truncated to one decimal place.

The answer is 5.8

Write down the error interval for c.

A line has gradient 7 and passes through the point (1, 5)

Find the equation of the line.

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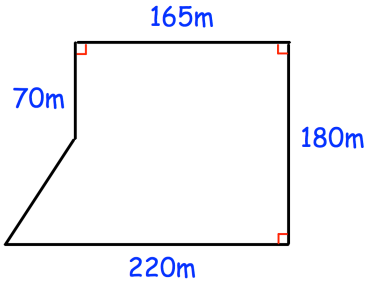
13th August	Foundation Plus 5-a-day
Write 708% as a simplified fraction	
	Farmer Richards owns this field. The crop he plants earns him £7 for each square metre. How much money does he earn in total?
Solve $x^2 + 10x - 39 = 0$	
$(a + c)^3 = t$ make c the subject	
Charlie and Ruma share some money in ratio 2 : 5 Ruma gets £216 more than Charlie. How much does each person receive?	

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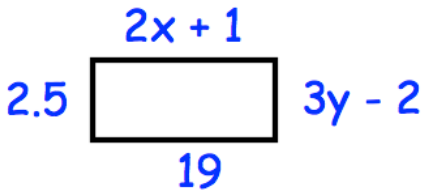
14th August **Foundation Plus 5-a-day**

Corbettmaths

Shown below is a rectangle.
The measurements are in centimetres.



Find x

Find y

Find the perimeter of the rectangle.

Expand and simplify

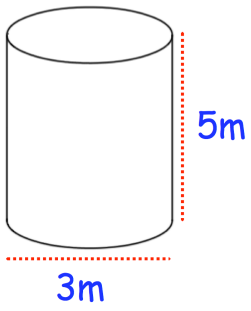
$(3w - 5)(2w + 9)$

A car travels at an average speed of 28.7mph

Work out an estimate for how long it will take the car to travel 10 miles.

Is your answer an underestimate or an overestimate

Calculate the surface area of the cylinder.



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15th August **Foundation Plus 5-a-day**

Corbettmaths

The cost, C pounds, of hiring a plumber is C = 40h + 15, where h is the number of hours.

Rearrange the formula to make h the subject.

Use your formula to find how many hours a plumber was hired for if the final cost is £315

Expand

$(9 - 2x)(8 - x)$

When a ball is dropped, it bounces and then rises.
The ball rises to 90% of the height from which it is dropped.
The ball is dropped from a height of 5m.

Calculate the height of the rise after the first bounce.

The ball carries on bouncing, each time rising to 90% of the last rise.

For how many bounces does it rise to a height greater than 1m?

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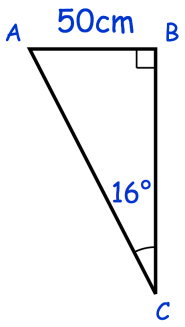
16th August	Foundation Plus 5-a-day
A farmer says he has 2,500 sheep, to the nearest 100. What is the greatest possible number of sheep he has?	
ABC is a right angled triangle AB = 50cm and ACB = 16° Find AC	
The bearing of A from B is 025° Find the bearing of B from A.	
A car decreases in value 15% a year. If it was bought for £5000, how much will it be worth after 2 years?	
The interior angle of a regular polygon is 14 times larger than the exterior angle. How many sides does the polygon have?	

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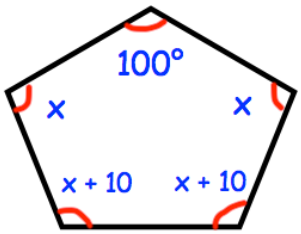
17th August **Foundation Plus 5-a-day**

Corbettmaths

$\frac{8}{101}$, $\frac{9}{91}$, $\frac{10}{81}$, $\frac{11}{71}$ ...

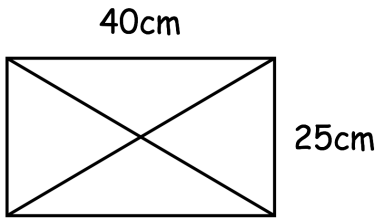
Find the nth term



Find x

Shown is a rectangular metal frame with two diagonal supports.

What length of metal is used?



The mass of Earth is 5.97×10^{24} kg

The mass of Jupiter is 1.898×10^{27} kg

Work out how many times heavier Jupiter is than Earth.
Give your answer to one decimal place.

A line has equation $y = -4x$

Write down the gradient of the line

Write down the coordinates of the y-intercept of the line

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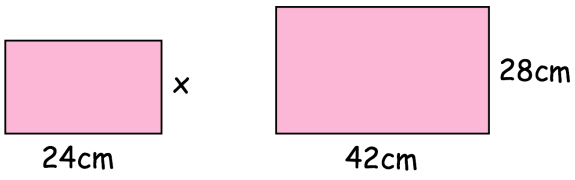
18th August **Foundation Plus 5-a-day**

Corbettmaths

Solve the inequality $2x - 1 < 9$



The diagram shows two similar rectangles

Find x

Find the area of the smaller rectangle

Bank of Maths

Double your money in 15 years.

The average annual growth for your investment is 4.5%

Tahir has some money to invest and sees this advert.
Will Tahir double his money in 15 years by investing his money with "Bank of Maths?"

There are 6000 people at an ice hockey match.
The announcer says this is exactly 40% more people that the previous match.

Explain why the announcer is incorrect.

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19th August **Foundation Plus 5-a-day**

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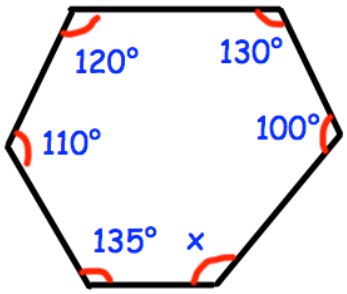
Ian truncates a number, y, to one decimal place. The result is 8.1 Write down the error interval for y	
	Find x
Solve the inequality $9x + 4 < 5x - 22$	
A rectangle has one side 4cm longer than the other. Write an expression for the area.	
Write down the equation of the line that is parallel to $y = 5x + 2$ and passes through (0, 7)	

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20th August **Foundation Plus 5-a-day**

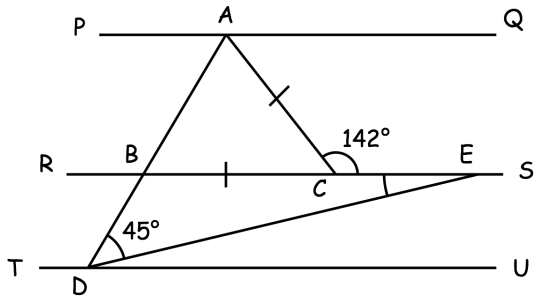
Corbettmaths

Use approximations to estimate the value of

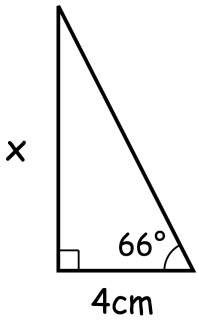
$$\frac{4.12 \times 1.89}{0.21}$$

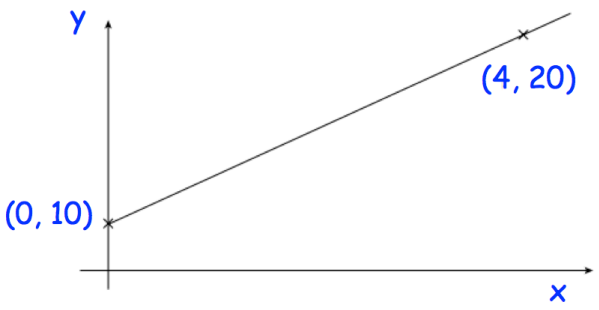
Lines PQ, RS & TU are parallel.

Find angle BED



Find x





Find the equation of this line

There are only red, green and blue pens in a box.

There are twice as many green pens as red pens.
There are five times as many blue pens as red pens.

Work out the probability of a green pen being picked at random from the box.

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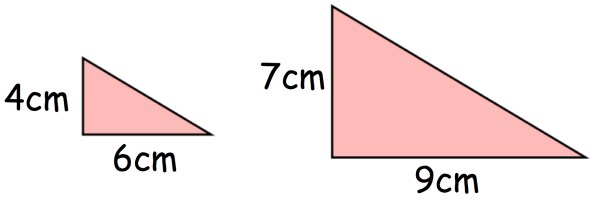
21st August **Foundation Plus 5-a-day**

Corbettmaths

A fair coin is flipped twice.

Write down the probability of getting two tails.

Norman says “the two triangles are similar because 3cm has been added to both the height and base of the smaller triangle.”
Explain why Norman is incorrect.



Here are the equations of four lines.

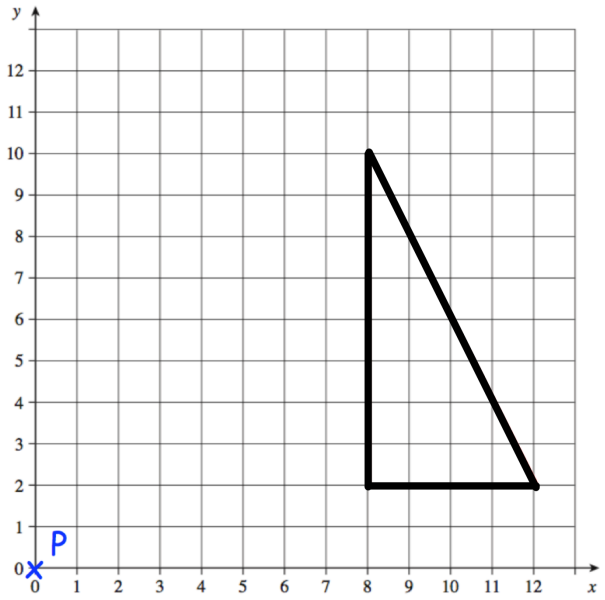
Line 1 $y = 4x + 1$

Line 2 $4x - y - 9 = 0$

Line 3 $2y = 10 - 8x$

Line 4 $\frac{1}{2}y = 2x + 7$

Which line is not parallel to the other three?



Enlarge the triangle by scale factor $\frac{1}{4}$ using P as the centre of enlargement.
Label this triangle B.

Translate triangle B by $\begin{pmatrix} 3 \\ 7.5 \end{pmatrix}$

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22nd August **Foundation Plus 5-a-day**

Corbettmaths

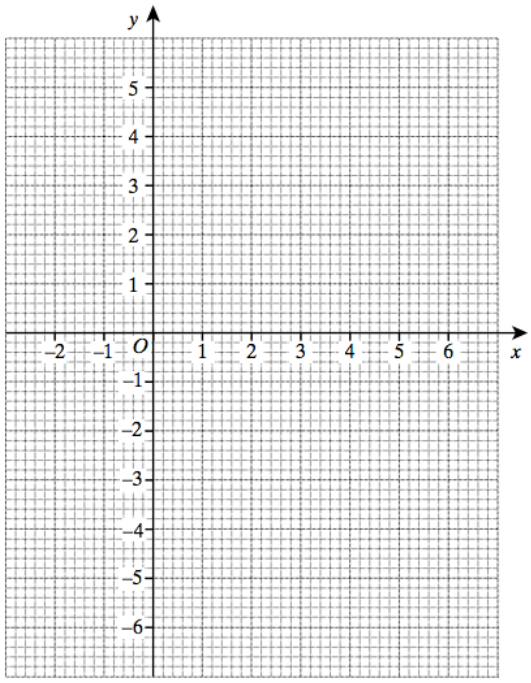
Solve the simultaneous equations

$$4x + 2y = 14$$

$$x + 2y = 8$$

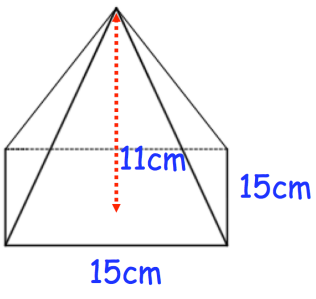
There are 90 cards in a pack.
Each card is red or yellow.
The ratio of the number of red cards to yellow cards is 1:2
10 more yellow cards are added to the pack.

Find the ratio of red cards to yellow cards that are now in the pack.
Give your answer in its simplest form.



On the grid, draw the graph of
$y = x^2 - 4x - 2$

Calculate the volume of the square based pyramid.



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23rd August **Foundation Plus 5-a-day**

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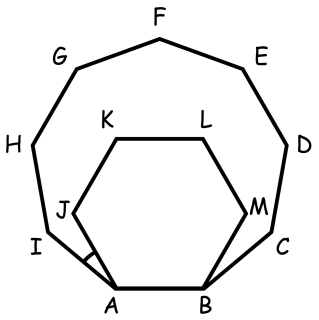
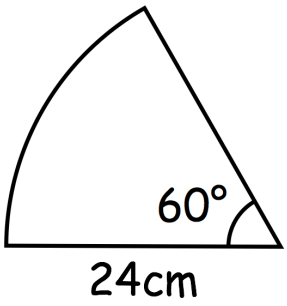
Martin says 'There is a 30% chance of rain today.' Tim says 'That means there is a 70% chance of it being sunny today.' Explain why Tim is not correct.	
ABCDEFGHI is a regular nonagon ABMLKJ is a regular hexagon. Find angle IAJ	
Work out $\frac{1}{6} \div 1\frac{5}{8}$	
	Calculate the area of this sector.
Nancy returns from holiday and changes her remaining euros into pounds at the Post Office. The exchange rate is £1 = €1.09 The Post Office deduct commission of 3% and give Nancy £388	How many euros did Nancy return from holiday with?

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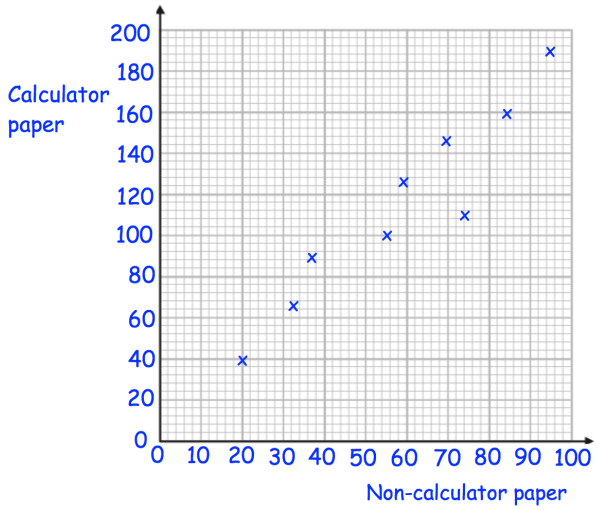
24th August **Foundation Plus 5-a-day**

Corbettmaths

Solve $x^2 - 8x - 33 = 0$

The students in a class sit a non-calculator and a calculator maths paper.



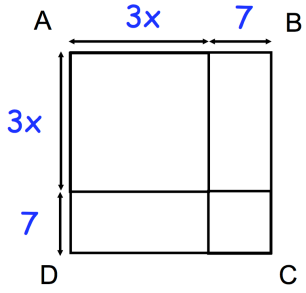
Lucy was absent for the calculator paper, but she scored 80 in the non-calculator paper.

Use a line of best fit to predict her calculator paper score.

Zofia was absent for the non-calculator paper, but she scored 60 in the calculator paper.

Use a line of best fit to predict her non-calculator paper score.

Find an expression for the area of square ABCD.



Solve the simultaneous equations

$$3x + 8y = 31$$
$$5x + 3y = 31$$

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25th August **Foundation Plus 5-a-day**

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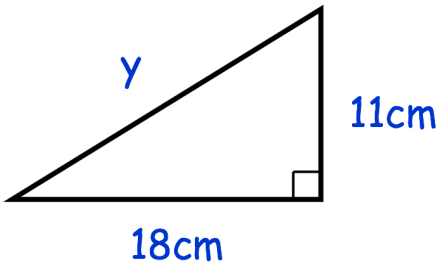
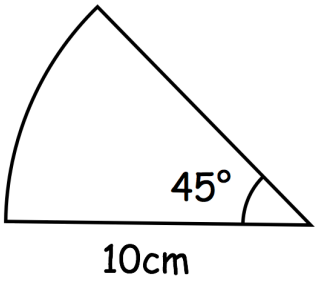
Expand and simplify $(3y - 2)(2y + 3)$	
Find y	
Jenson drove 45 miles from Ipswich to Norwich. He left at 17:35 and arrived at 18:55 Work out his average speed	
Simplify $\frac{\pi}{12} \div \frac{\pi}{3}$	
Find the perimeter of the sector.	

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26th August **Foundation Plus 5-a-day**

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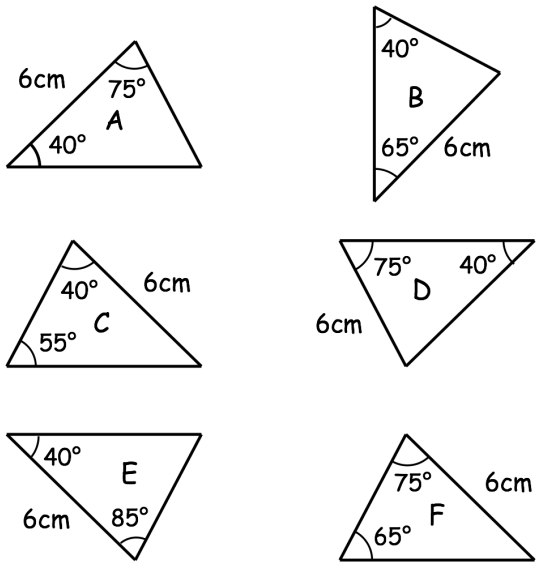
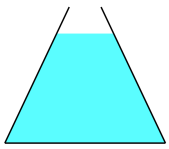
Factorise $x^2 + 9x + 20$

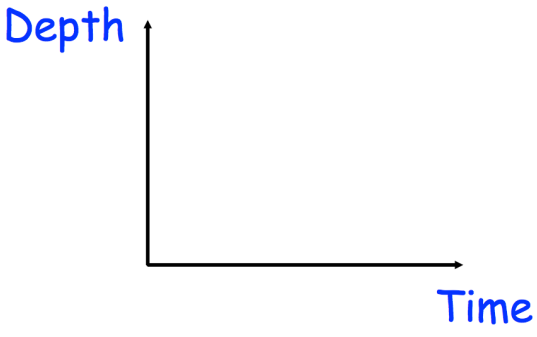
Write down the three pairs of congruent triangles.



Work out $6.912 \div 0.12$

Water pours steadily into the container below. The container is empty before the water is poured in. Sketch the graph to show the depth of water over time.





Which is smaller?

$(x + 3)^2$ or $x^2 + 6x + 7$

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27th August **Foundation Plus 5-a-day**

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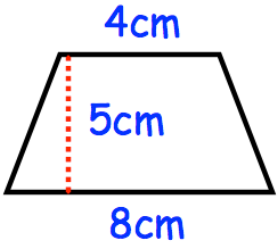

Calculate the area of the trapezium

Expand and simplify

$(5y - 2)(2y + 3)$

$x = 10y + 14$

Rearrange the formula to make y the subject

A coin is flipped and a dice is rolled.

What is the probability of a tail and a 3

$\mathbf{a} = \begin{pmatrix} 5 \\ -4 \end{pmatrix}$ $\mathbf{b} = \begin{pmatrix} -1 \\ -2 \end{pmatrix}$

Work out $4\mathbf{a} + 2\mathbf{b}$

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28th August **Foundation Plus 5-a-day**

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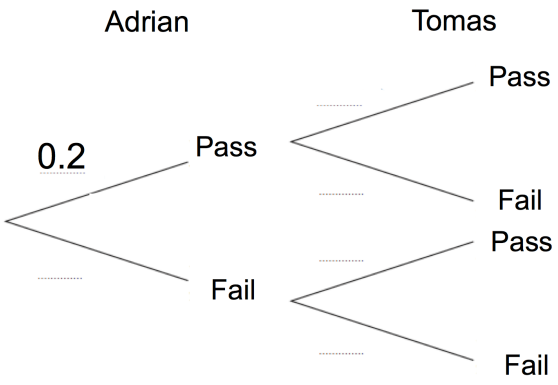
There was 50 club members in June and 72 club members in October.

What was the percentage increase?

Adrian and Tomas sit their music exams.
The probability that Adrian passes is 0.2
The probability that Tomas fails is 0.3

Complete the tree diagram.

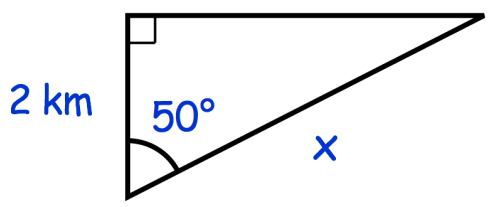


Find the probability that both boys pass.

The nth term of a sequence is $(n+1)(n+2)$

The nth term of another sequence is $2n^2+4$

Find any number, less than 100, that is in both sequences



Find x

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29th August **Foundation Plus 5-a-day**

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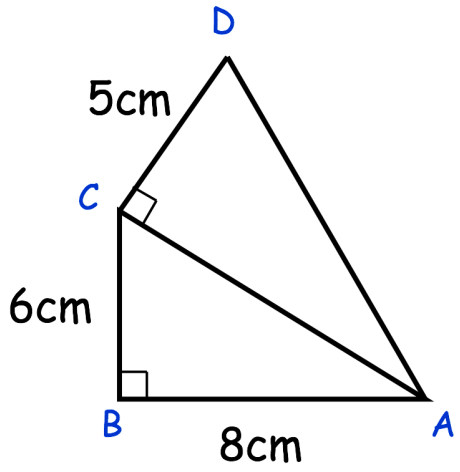
Write $4cm^3$ in mm^3

The population of Wigan in 2001 was 301,500.
In 2018, the population was 326,100.
Calculate the percentage increase.

Give your answer correct to one decimal place.



Find the length of AD

Work out the area of quadrilateral ABCD.

Box A and Box B have an equal ratio of red and yellow counters.

In Box A, there are 16 red and 36 yellow counters.

In Box B, there are 455 counters altogether

How many red counters are there altogether in Box A and Box B?

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30th August **Foundation Plus 5-a-day**

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Work out

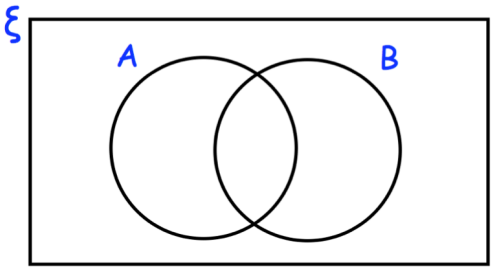
$\frac{7}{9} \div 3$

Work out the Lowest Common Multiple of 24 and 64.

Calculate the pressure if the area is $10cm^2$ and the force is 420N

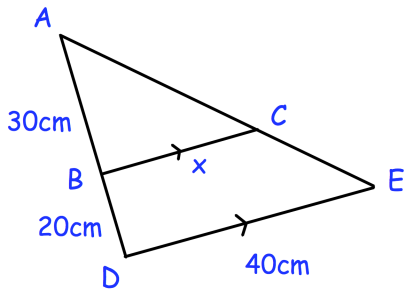
$\xi = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$
A = {prime numbers}
B = {numbers greater than 8}

Draw a Venn diagram for this information.



Triangles ABC and ADE are similar.
Lines BC and DE are parallel.

Find x



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31st August	**Foundation Plus 5-a-day**
Estimate $\frac{(49.98)^2}{0.401}$	
Solve $3(x - 4) - 2(x - 1) = 3x - 20$	
Write 50 as a product of primes. Give your answer in index form.	Write 48 as a product of primes. Give your answer in index form.
Find the HCF of 50 and 48.	Find the LCM of 50 and 48.
A bag contains good and bad apples. n of the apples are good. The other 5 apples are bad. Write down an expression, in terms of n, for the probability that a bad apple is picked at random from the bag.	

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