8th September

Corbettmaths

A special edition packet of cereal contains an extra 30%.

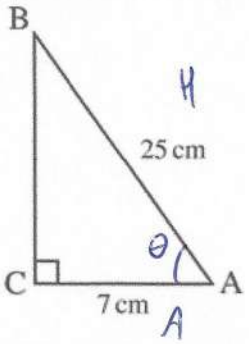
The special edition packet contains 546g.

What does the normal packet contain?

130% = 546

1% = 4.2

100% = 420g



Calculate angle CAB

$\cos\theta = \frac{7}{25}$

$\theta = \cos^{-1}\left(\frac{7}{25}\right)$

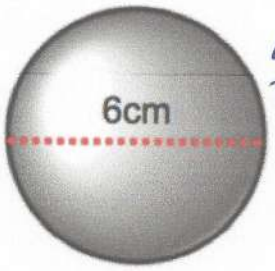
$= 73.74°$

Solve

$x^2 - 6x - 16 = 0$

$(x-8)(x+2) = 0$

$x = 8$ or $x = -2$



$\frac{4}{3}\pi r^3$

Find the volume of this sphere.

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

$= 113.097..cm^3$

(36π)

Mr Jenkins catches the 11:45am bus from London to Glasgow.
The distance between the two cities is 407 miles.
The bus travels at an average speed of 55mph.

19:09

What time should he arrive in Glasgow?

$t = \frac{d}{s} = \frac{407}{55}$

7.4 hours

7 hours 24 mins

or 7:09pm

9th September

Corbettmaths

The front elevation of a solid shape is a circle.
The side elevation of the solid shape is a rectangle.
The plan view of the solid shape is a rectangle.

Write down the name of the shape.

Cylinder

Calculate the nth term

20 16 12 8 ... .

$-4n + 24$

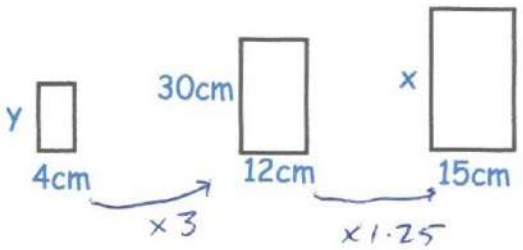
or $24 - 4n$

Work out the 80th term.

$24 - 4 \times 80$

$24 - 320 = -296$

Not drawn accurately



The diagram shows three similar rectangles.

Work out the value of x.

$12 \times 1.25 = 15$cm

Work out the value of y.

$30 \div 3 = 10$cm

Lauren is given a 12% pay rise.
Her new salary is £24,080

What was Lauren's salary before the pay rise?

112% = 24080

1% = 215

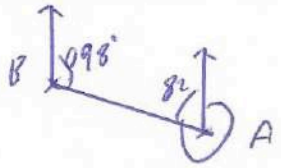
100% = 21500

£21500

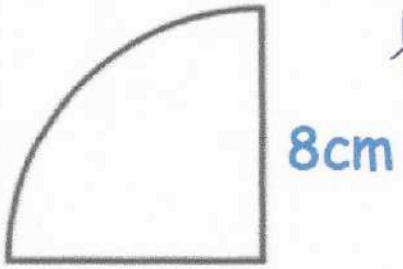
15th September

Corbettmaths

The bearing of A from B is 098°, find the bearing of B from A.



$360 - 82 = 278°$



$\frac{1}{4}\pi r^2$

Calculate the area.
Give your answer in terms of π

$\frac{1}{4} \times \pi \times 8^2$

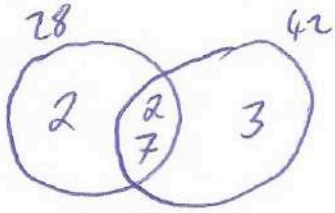
$\frac{1}{4} \times \pi \times 64$

$16\pi \text{ cm}^2$

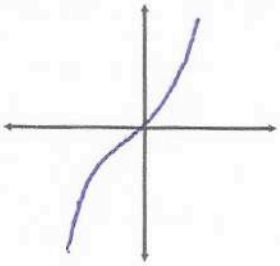
Work out the LCM of 28 and 42

$28 = 2 \times 2 \times 7$

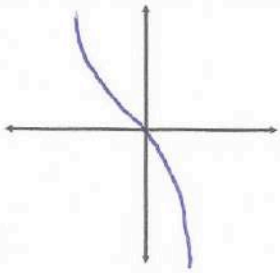
$42 = 2 \times 3 \times 7$



$LCM = 2 \times 2 \times 3 \times 7 = 84$



Sketch $y = x^3$



Sketch $y = -x^3$

A full box holds 50 CDs to the nearest 10. 54

What is the greatest number of CDs that 8 boxes would hold?

$54 \times 8 = 432$

16th September

Corbettmaths

$-8 \le 2y < 3$

$-4 \le y < 1.5$

y is an integer.

Write down all the possible values of y.

$-4, -3, -2, -1, 0, 1$

A circle has area 80cm².

Find the circumference.

$\pi r^2 = 80$

$r^2 = 25.46...$

$r = 5.046...$

$d = 10.0925...$

$C = \pi \times d$

$C = 31.707cm$

Write as a fraction

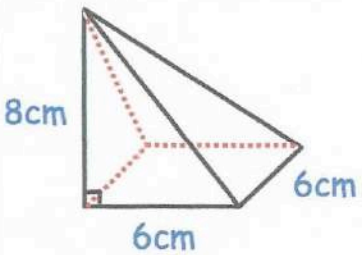
5^{-3}

$\frac{1}{5^3} = \frac{1}{125}$

Without using a calculator, work out.

$\sqrt{4.9 \times 10^{11}}$

$\sqrt{49 \times 10^{10}} = 7 \times 10^5$ or $700\,000$



$V = \frac{1}{3} A h$

$A = 6 \times 6 = 36$

Find the volume of this pyramid

$V = \frac{1}{3} \times 36 \times 8$

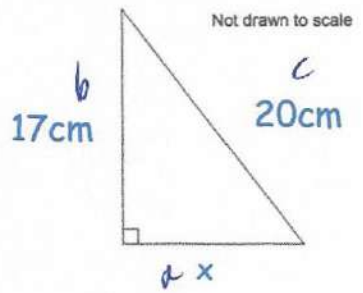
$V = 96 cm^3$

22nd September

Corbettmaths

Work out the reciprocal of 0.7 $= \frac{7}{10}$

$\frac{10}{7}$ or $1\frac{3}{7}$



Find x

$a^2 + b^2 = c^2$

$x^2 + 17^2 = 20^2$

$x^2 + 289 = 400$

$x^2 = 111$

$x = \sqrt{111} = 10.536\text{cm}$

Solve

$3w + 20 = 9w - 10$

$-3w \qquad -3w$

$20 = 6w - 10$

$6w = 30$

$w = 5$

James leaves £8000 in the bank for two years.

It earns compound interest of 5% per year.

Calculate the total amount in the bank at the end of two years.

$8000 \times 1.05^2 = £8820$

Calculate the volume of the sphere.
Give your answer to 1 decimal place.

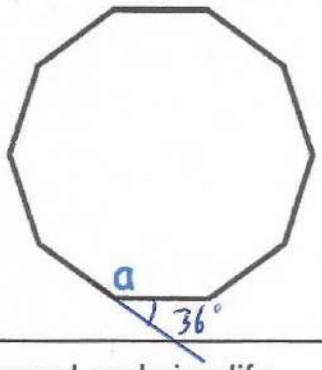
$V = \frac{4}{3}\pi r^3$

$= \frac{4}{3} \times \pi \times 10^3$

$= 4188.8\text{cm}^3$

23rd September

Corbettmaths



$360 \div 10$

$= 36°$

Shown is a regular decagon.

Find the size of each interior angle

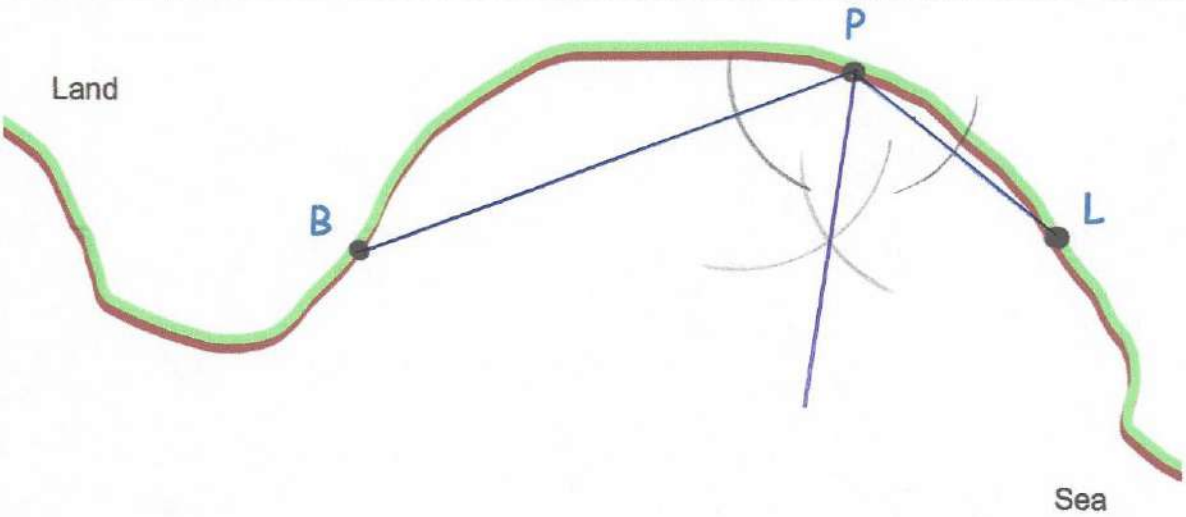
$180° - 36° = 144°$

Expand and simplify

(y - 5)(y - 5)

$y^2 - 5y - 5y + 25$

$y^2 - 10y + 25$



A yacht leaves the port, P, on a course that is an equal distance from PB and PL.
Using ruler and compasses only, construct the course on the diagram.
You must show your construction arcs.

Solve

$3x - 2y = 14$
$x + 2y = 10$ add

$4x = 24$

$x = 6$

$6 + 2y = 10$

$2y = 4$

$y = 2$

$x = 6$ & $y = 2$

29th September

Corbettmaths

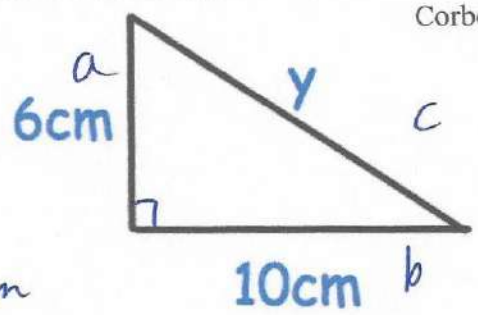
Find y

$a^2 + b^2 = c^2$

$6^2 + 10^2 = y^2$

$36 + 100 = y^2$

$y^2 = 136$ $y = \sqrt{136} = 11.66$ cm



Write down the inequality shown above

$x \leq 3$

Solve 5x + 1 > 9x + 3

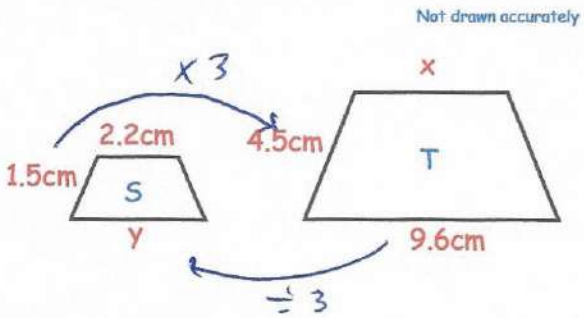
$-5x \quad -5x$

$1 > 4x + 3$

$-2 > 4x$

$4x < -2$

$x < -0.5$



Trapezium S and trapezium T are similar.

Find the size of y.

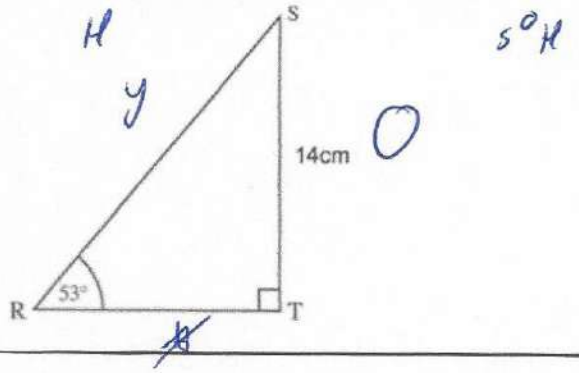
$9.6 \div 3 = 3.2$ cm

An asteroid travels at 25 kilometres per second.
How far does it travel in one hour?
Give your answer in standard form.

25 km in 1 second
1500 km in 1 minute
90000 km in 1 hour

90000 km

$= 9 \times 10^4$



Find the length of RS.

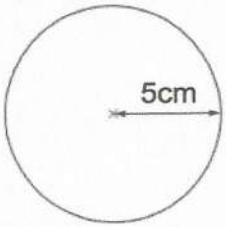
$y = \frac{14}{\sin 53}$

$y = 17.53$ cm

Name: _____ 5-a-day Foundation Plus

30th September

Corbettmaths



Find the area of the circle.
Give your answer in terms of π

$\pi \times 5^2$

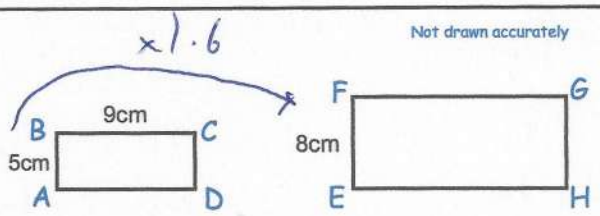
25π cm^2

Factorise $x^2 - 14x + 48$

$(x-6)(x-8)$

Factorise $x^2 + 17x + 60$

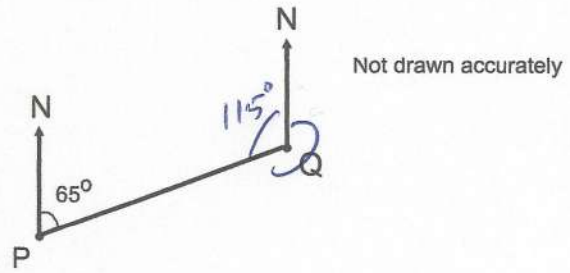
$(x+5)(x+12)$



Rectangles *ABCD* and *EFGH* are similar.

Work out the length of FG.

$9 \times 1.6 = 14.4$



Find the bearing of P from Q

245°

6.1154 has been truncated to four decimal places.

Write down an inequality to show the range of possible actual values.

$6.1154 < x < 6.1155$

6th October

Corbettmaths

Find the reciprocal of 1.5 $\frac{3}{2}$

$\frac{2}{3}$

Find the reciprocal of 0.15 $\frac{3}{20}$

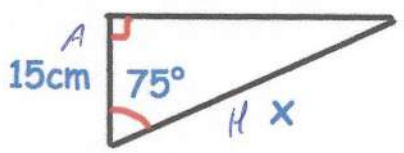
$\frac{20}{3} = 6\frac{2}{3}$

A fish tank has sprung a leak, at the base of the tank.
5% of the water is lost every minute.

How much water is lost from the tank after six minutes?

$100 \times 0.95^6 = 73.509...$

$100 - 73.509... = 26.49\%$

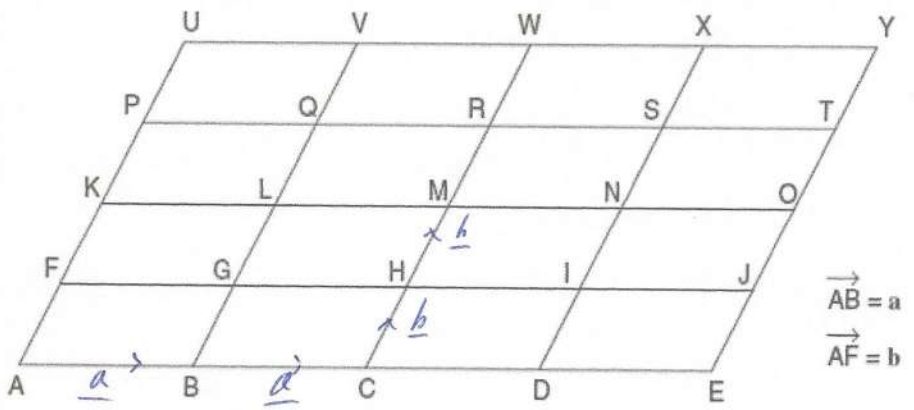


C A H

Find x

$x = \frac{15}{\cos 75}$

$= 57.96$ cm



Write a vector for $\overrightarrow{AM}$ in terms of **a** and **b**

$2\underline{a} + 2\underline{b}$

Write a vector for $\overrightarrow{MK}$ in terms of **a** and **b**

$-2\underline{a}$

7th October

Corbettmaths

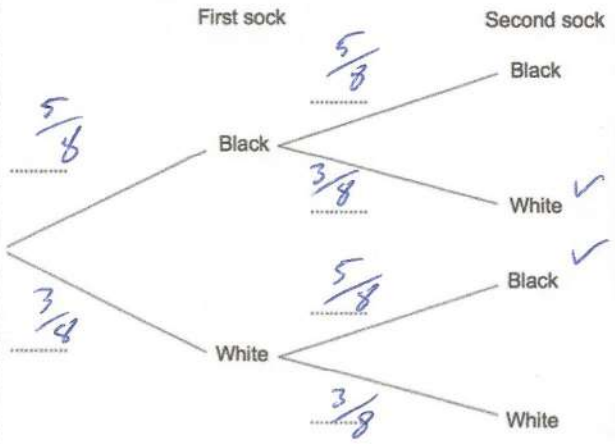
Work out

$1\frac{3}{4} + 6\frac{2}{3}$

$\frac{7}{4} + \frac{20}{3}$

$\frac{21}{12} + \frac{80}{12}$

$\frac{101}{12} = 8\frac{5}{12}$



Complete the tree diagram.

Natalie has 8 socks in a drawer.
5 of the socks are black. 3 of the socks are white.

Natalie takes out a sock at random, writes down its colour and puts it back into the drawer. Then Natalie takes out a second sock, at random, and writes down its colour.

Work out the probability both socks are different colours.

$P(BW) = \frac{5}{8} \times \frac{3}{8} = \frac{15}{64}$

$P(WB) = \frac{3}{8} \times \frac{5}{8} = \frac{15}{64}$

$\frac{30}{64} = \frac{15}{32}$

Expand

$(x + 5)(x - 1)$

$x^2 - x + 5x - 5$

$x^2 + 4x - 5$

Rachel buys a DVD for £18.50.

A year later she sells it for £15.91

What is the percentage decrease in value of the DVD?

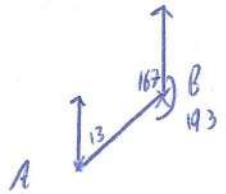
$\frac{259}{1850} \times 100$

14%

13th October

Corbettmaths

The bearing of A from B is 193°, find the bearing of B from A.



013°

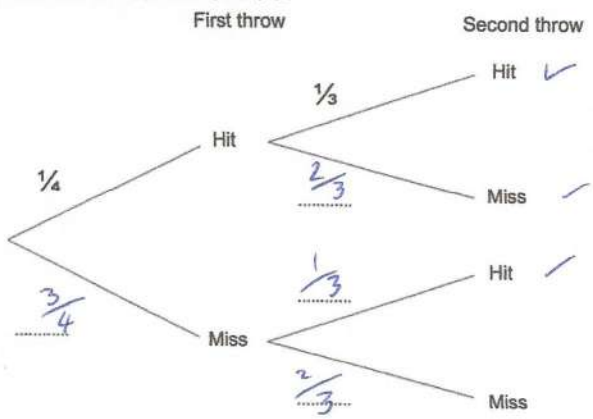
Write down the exact value of Sin 0°

0

Write down the exact value of Sin 90°

1

Jennifer is playing darts.
She throws two darts aiming for a Bullseye. The probability Jennifer hits the Bullseye on her first throw is ¼.
The probability she hits the Bullseye on her second throw ⅓.



Complete the tree diagram.

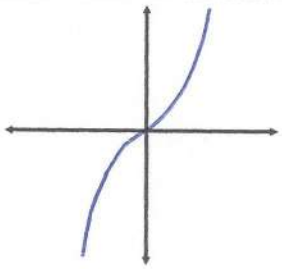
$P(HH) = \frac{1}{4} \times \frac{1}{3} = \frac{1}{12}$

$P(Hm) = \frac{1}{4} \times \frac{2}{3} = \frac{2}{12}$

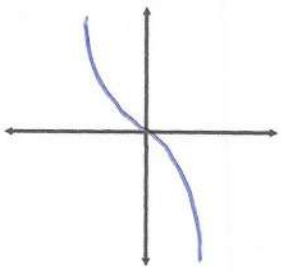
$P(mH) = \frac{3}{4} \times \frac{1}{3} = \frac{3}{12}$

Work out the probability Jennifer hits the Bullseye at least once.

$\frac{6}{12} = \frac{1}{2}$



Sketch $y = x^3$



Sketch $y = -x^3$

14th October

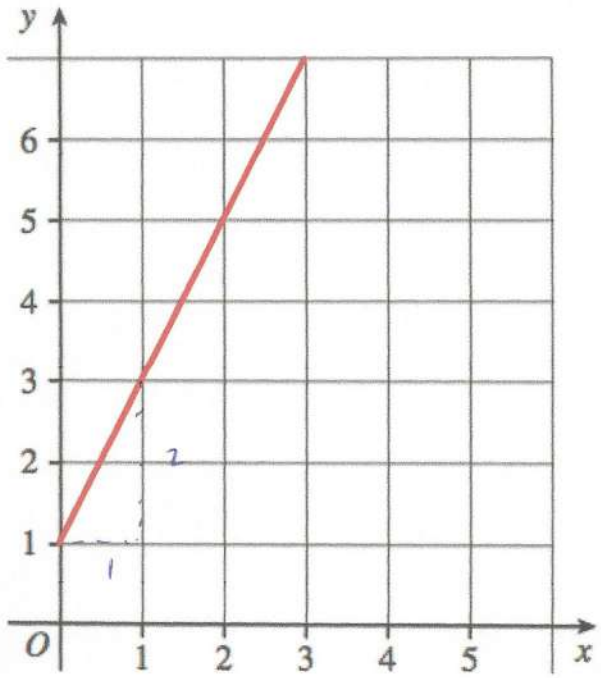
Corbettmaths

Write 2.39×10^6 as an ordinary number

2390000

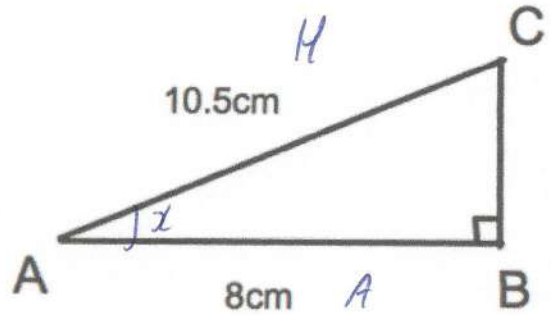
Write 0.00034 in standard form

3.4×10^{-4}



Work out the equation of line L

$y = 2x + 1$



Calculate angle BAC.

$\cos x = \frac{8}{10.5}$

$x = \cos^{-1}\left(\frac{8}{10.5}\right)$

$x = 40.3676°$

A fish tank has sprung a leak, at the base of the tank.
5% of the water is lost every minute.

How much water is lost from the tank after ten minutes?

$100 \times 0.95^{10} = 59.87$

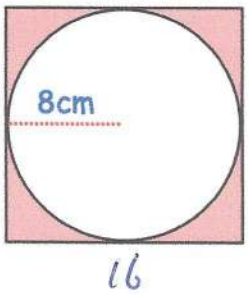
$100 - 59.87... =$

40.1263%

20th October

Corbettmaths

Calculate the shaded area



$16 \times 16 = 256$

$\pi \times 8^2 = 201.0619..$

$256 - 201.0619298$

$= 54.938 cm^2$

Solve

$x^2 + 8x + 16 = 0$

$(x+4)(x+4) = 0$

$x = -4$

£60 for 200ml

Two shops sell the same type of perfume. A 100ml bottle of perfume normally costs £40.

Rebecca says that both offers give the same value for money.
Is she correct? Show your working.

No

Shop A

$4000 \div 150 = 26.\dot{6}$ p per ml

Shop B

$6000 \div 200 = 30$p per ml

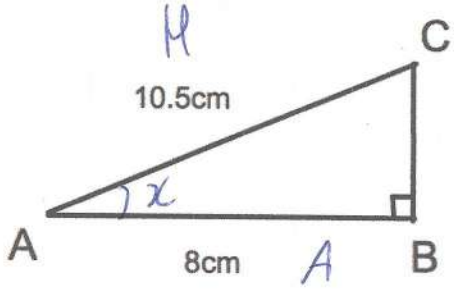
Shop A is better value

Calculate the size of angle CAB.

$\cos x = \frac{8}{10.5}$

$x = \cos^{-1}\left(\frac{8}{10.5}\right)$

$= 40.3676°$



21st October

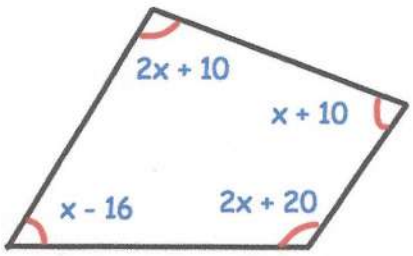
Corbettmaths

The population of a country is

9.08×10^5

Write the population of the country as an ordinary number.

908000

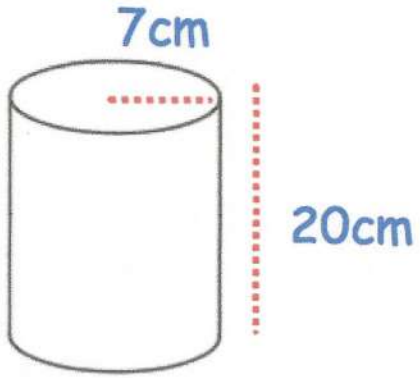


Find x

$6x + 24 = 360$

$6x = 336$

$x = 56°$



Carl is filling flowerpots with soil.

$V = \pi r^2 h$

$= \pi \times 7^2 \times 20$

$= 3078.76 \text{ cm}^3$

Each flowerpot is a cylinder with radius 7cm and height 20cm.
Carl has 50 litres of soil.

How many flowerpots can be filled?

volume of 1 flowerpot = 3.07876 L

$50 \div 3.07876$

16.24...

16

$2^{-3} \div 3^{-2}$

$\frac{1}{2^3} \div \frac{1}{3^2}$

$\frac{1}{8} \div \frac{1}{9}$

$\frac{1}{8} \times \frac{9}{1} = \frac{9}{8}$

or $1\frac{1}{8}$

27th October

Corbettmaths

Calculate the volume of a cylinder with height 20cm and diameter 8cm.

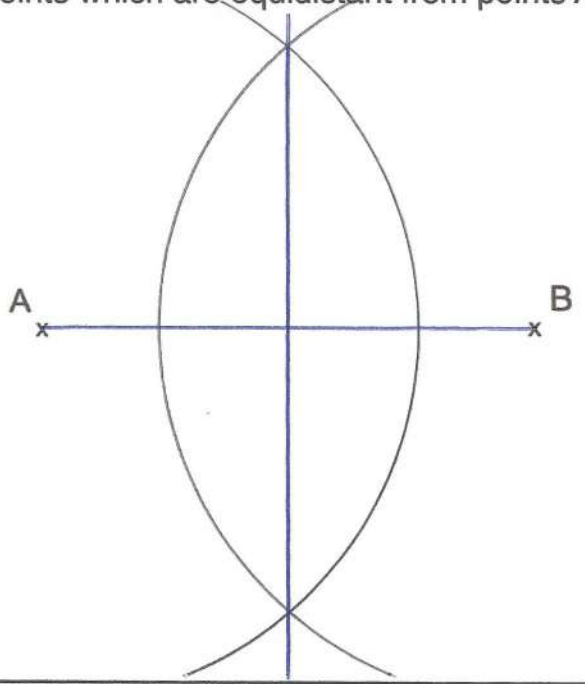
$V = \pi r^2 h$

$V = \pi \times 4^2 \times 20$

$= 320\pi$

$= 1005.309\ldots cm^3$

Draw the locus of all points which are equidistant from points A and B.



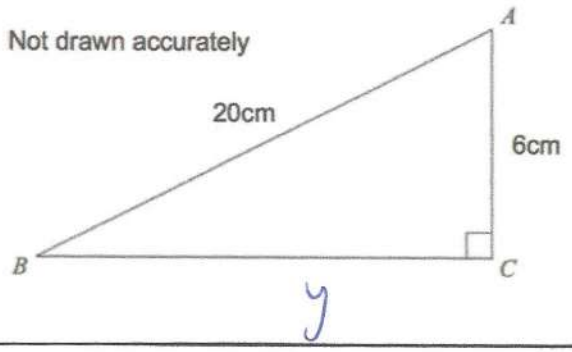
The population of a country is 5.2 million, to the nearest hundred thousand.

5,200,000

What is the greatest possible number of people that live in the country?

5,249,999

Not drawn accurately



Find the length of BC

$6^2 + y^2 = 20^2$

$36 + y^2 = 400$

$y^2 = 364$

$y = \sqrt{364}$

$= 19.079cm$

28th October

Corbettmaths

The price of a house in 2012 was 180,000.
On average, each year the house increased in value by 4%.
How much was the house worth in 2017?

180000×1.04^5

£218997.52

Solve

$$\frac{53 - 2x}{5} = 7$$

$\times 5 \quad \times 5$

$53 - 2x = 35$
$53 = 35 + 2x$
$2x = 18$
$x = 9$

What is the sum of the interior angles for an octagon?

$(n-2) \times 180$
$(8-2) \times 180 = 1080°$

What is the size of each interior angle for a regular octagon?

$1080 \div 8 = 135°$

Age		Frequency	fx
$0<A\leq10$	5	5	25
$10<A\leq20$	15	9	135
$20<A\leq40$	30	6	180
		20	340

Calculate an estimate of the mean.

$340 \div 20 = 17$

Shown is one angle from a regular polygon.

How many sides does it have?

$360 \div 12 = 30$ sides

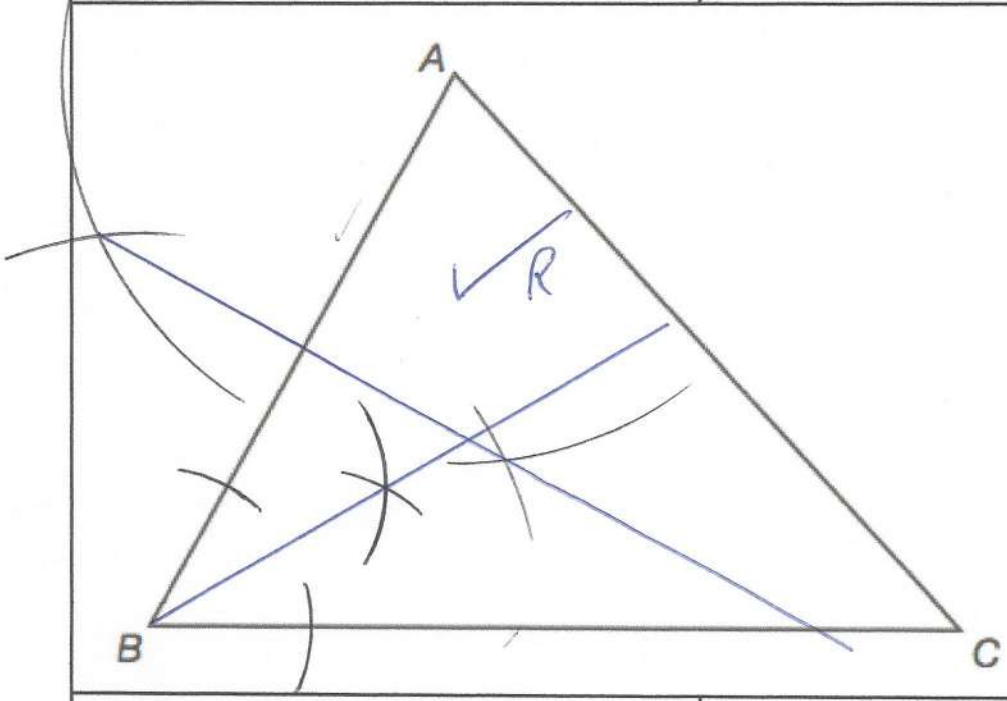
3rd November

Corbettmaths

The mean of six numbers is 5. Five of the numbers are 6, 6, 5, 3 and 1. = 21
Work out the sixth number.

$6 \times 5 = 30$

$30 - 21 = 9$



Construct the angle bisector of angle ABC

Shade the region which satisfies the conditions:

- Closer to AB than BC
- Closer to A than B.

A solid sphere with radius of length 5cm, is made from a material with density 4.2g/cm³

Calculate the mass of the sphere.

$V = \frac{4}{3}\pi r^3$

$= \frac{4}{3} \times \pi \times 5^3$

$= 523.5987756 \text{ cm}^3$

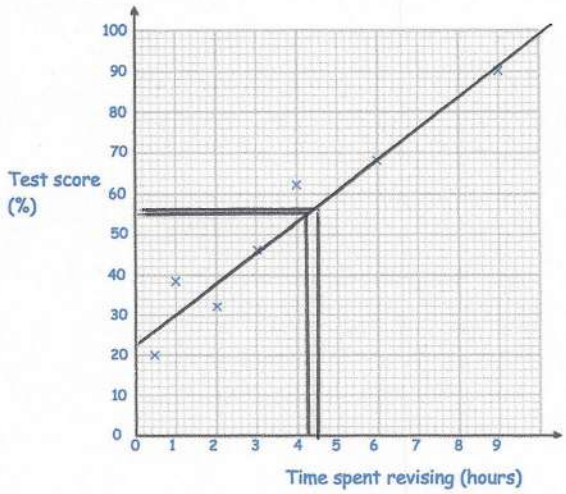
$m = d \times V = 2199.1149 \text{g}$ $\times 4.2$

2.199kg

Name: _____ 5-a-day Foundation Plus

4th November

Corbettmaths



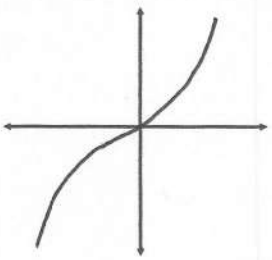
The table shows the time spent revising and the test scores of seven students.

Another student has spent 4.5 hours revising.
Estimate their test result.

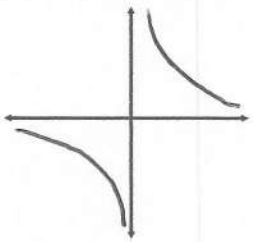
56 %

A student scored 55%
Estimate how much time they spent revising.

4.2



Sketch $y = x^3$



Sketch $y = \frac{1}{x}$ where $x \neq 0$

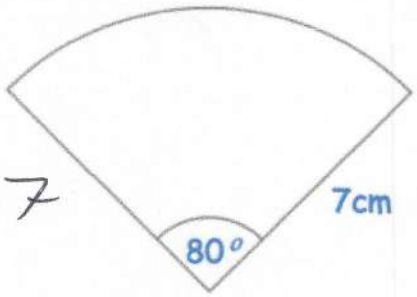
A line has equation $y = 5x - 4$

Write down the gradient of the line

5

Write down the y-intercept of the line

(0, -4)
or -4



Calculate the perimeter of this sector.

$\frac{80}{360} \times \pi \times 14 = 9.774$

$9.774 + 7 + 7 =$

23.774 cm

10th November

Corbettmaths

$A = 6 \times 10^5$ $B = 30000$

$C = 5 \times 10^{-2}$ 3×10^4

Work out AB

$(6 \times 10^5) \times (3 \times 10^4)$

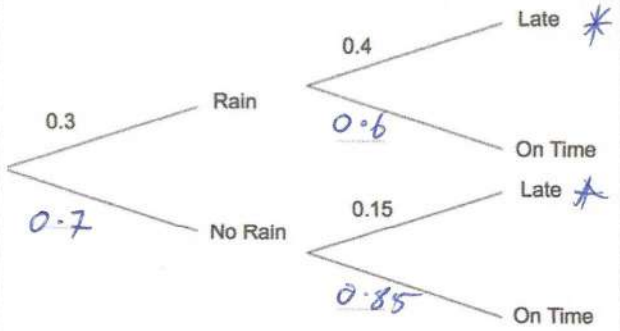
18×10^9

1.8×10^{10}

A line has gradient 3 and passes through the point (1, 5)

Find the equation of the line.

$y = 3x + 2$



In a small village, one bus arrives a day. The probability of rain in the village is 0.3.
If it rains, the probability of a bus being late is 0.4.
If it does not rain, the probability of a bus being late is 0.15.

Complete the tree diagram.

$0.3 \times 0.4 = 0.12$

$0.7 \times 0.15 = 0.105$

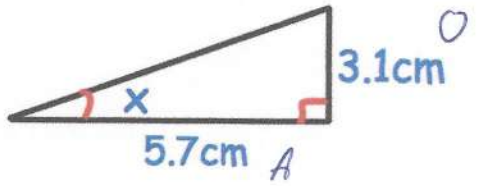
$+$

0.225

Work out the number of days the bus will be late over a period of 160 days.

160×0.225

36



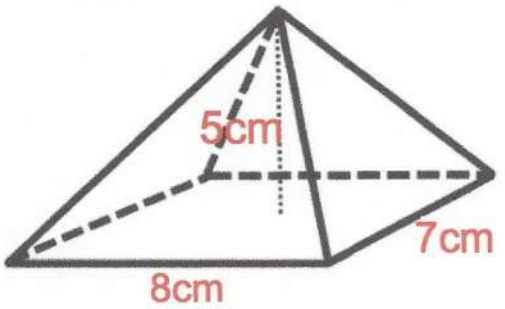
Find x

$\tan x = \frac{3.1}{5.7}$

$\tan^{-1}\left(\frac{3.1}{5.7}\right) = 28.54°$

11th November

Corbettmaths



Calculate the volume of the pyramid

$V = \frac{1}{3}Ah$

$= \frac{1}{3} \times (8 \times 7) \times 5$

$= 93.\dot{3}\ cm^3$

length, L, cm	Frequency
0 < L ≤ 10	21
10 < L ≤ 20	11
20 < L ≤ 30	31
30 < L ≤ 40	12
40 < L ≤ 50	25
+	100

midpoint	fx
5	105
15	165
25	775
35	420
45	+1125
	2590

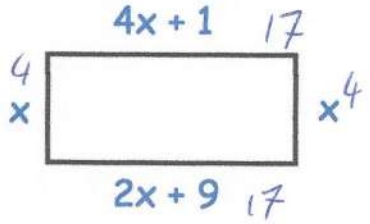
What is the modal interval?

$20 < L \leq 30$

Calculate an estimate of the mean.

$2590 \div 100$

25.9 cm



$4x + 1 = 2x + 9$

$2x + 1 = 9$

$2x = 8$

$x = 4$

Find the perimeter of the rectangle

42 cm

At a concert

the ratio of men to women is 4:5
the ratio of children to women is 2:1

There are 475 people at the concert.

How many women are at the concert?

m w c

4 : 5

1 : 2 2×5

4 : 5 : 10

$4 + 5 + 10 = 19$

$475 \div 19 = 25$

$25 \times 5 = 125$

125

17th November

Corbettmaths

Solve the inequality $3x - 8 > 16$

$3x > 24$

$x > 8$

Height, h, cm		Frequency	fx
110 ≤ h < 120	115	13	1495
120 ≤ h < 130	125	5	625
130 ≤ h < 140	135	2	270
		20	2390

Work out an estimate for the mean

$2390 \div 20 = 119.5$

A fish tank has sprung a leak, at the base of the tank.
5% of the water is lost every minute.

How much water is lost from the tank after five minutes?

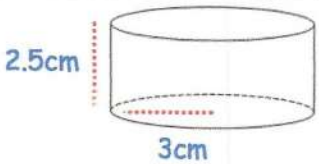
$100 \times 0.95^5 =$

$77.378...$

$100 - 77.378...$

22.62% lost

Calculate the volume of the cylinder.
Give your answer in terms of π
State the units of your answer.



$V = \pi r^2 h$

$= \pi \times 3^2 \times 2.5$

$= \pi \times 9 \times 2.5$

$22.5\pi \text{ cm}^3$

In England, a 10 mile train journey costs £6.40 $\times 1.6$ km $= 16$ k $\times 1.4 = €8.96$
In Ireland, a 20km train journey costs €10.85

Use 1 mile = 1.6 kilometres
At the time £1 = €1.40

Which train journey is better value?

16km for 8.96
1km for €0.56 } England

20km for 10.85
1km for €0.5425 } Ireland

Ireland is better value.

18th November

Corbettmaths

Factorise $x^2 - 36$

$(x+6)(x-6)$

The sum of three consecutive numbers is 51.

$x + (x+1) + (x+2)$

(a) Form an equation in terms of x

$3x + 3 = 51$

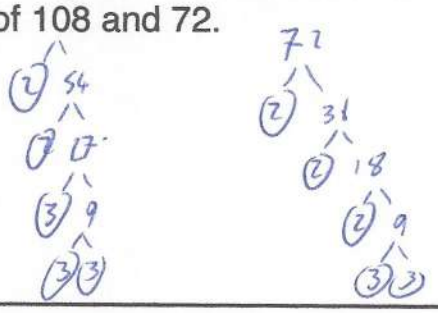
(b) Solve the equation and work out each number.

$3x = 48$

$x = 16$

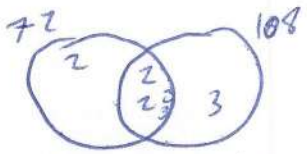
16, 17, 18

Find the Highest Common Factor (HCF) of 108 and 72.



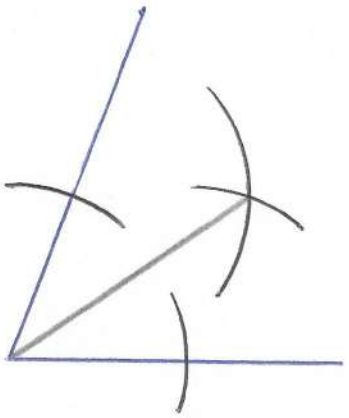
$108 = 2 \times 2 \times 3 \times 3 \times 3$

$72 = 2 \times 2 \times 2 \times 3 \times 3$



HCF $= 2 \times 2 \times 3 \times 3 = 36$

In the space below, draw a 70° angle.
Construct the angle bisector.



24th November

Corbettmaths

Expand and simplify

$3(2x - 5) - 2(7 - 9x)$

$6x - 15 - 14 + 18x$

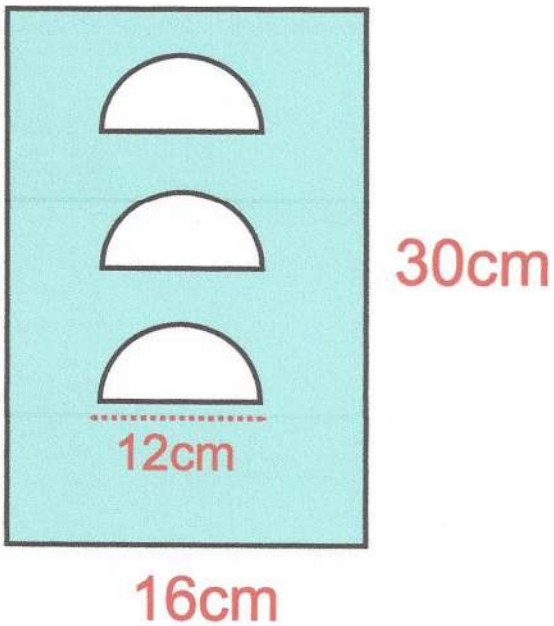
$24x - 29$

Every year the average wait time to be treated at Frome Accident and Emergency is recorded.

In 2017 patients waited 20% less time than in 2016.

In 2017, patients waited 52 minutes on average.
Work out the average wait time in 2016.

80% = 52
1% = 0.65
100% = 65 minutes



Three semicircles have been cut out of a piece of metal.

Find the shaded area

$30 \times 16 = 480 cm^2$

$\frac{1}{2}(\pi \times 6^2) = 56.548..$ (18π)

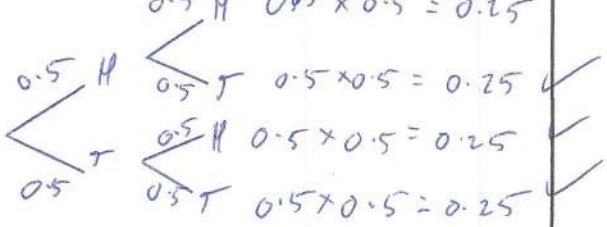
$3 \times 56.548.. = 169.646..$ (54π)

$480 - 169.646... =$

$310.354 cm^2$

A fair coin is flipped twice.
The probability of a tail is 0.5.

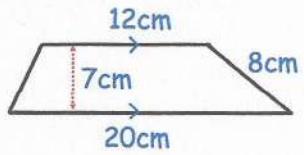
(a) Show this information on a tree diagram.
(b) Find the probability of at least one tail.



0.75

25th November

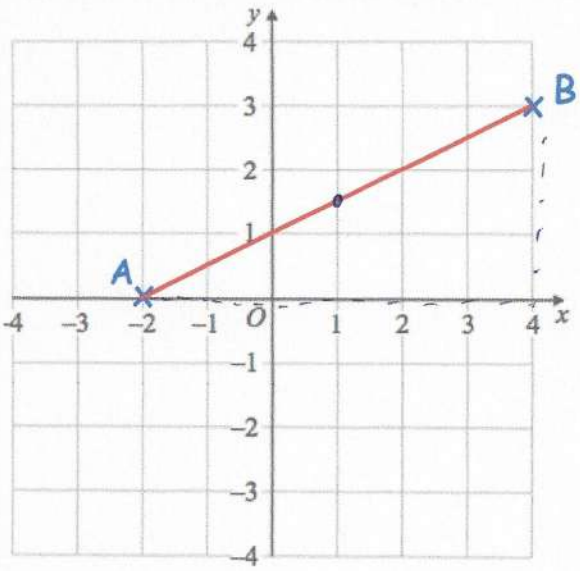
Corbettmaths



Find the area of the trapezium

$\frac{1}{2}(12+20) \times 7$

$16 \times 7 = 112\text{cm}^2$

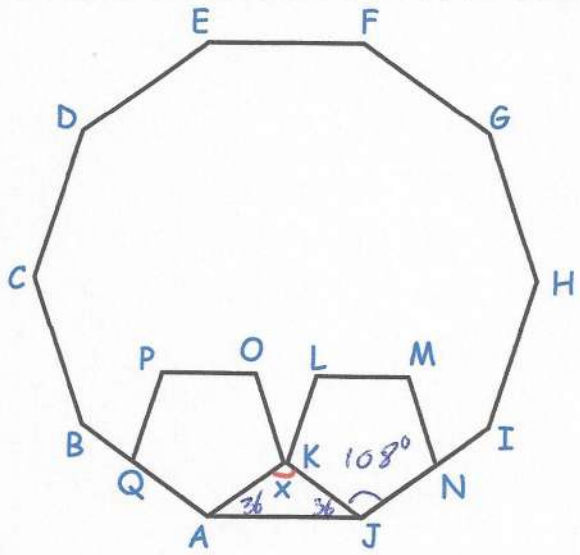


Find the gradient of the line AB

$\frac{3}{6} = \frac{1}{2}$

Find the midpoint of the line AB

$(1, 1.5)$



ABCDEFGHIJ is a regular decagon
JKLMN and AKOPQ are congruent regular pentagons.

Find x.

$1440 \div 10 = 144$

$540 \div 5 = 108$

$144 - 108 = 36°$

$180 - 72 = 108°$

1st December

Corbettmaths

Height (h metres)	mp	Frequency	fx
$1.50 \leq h < 1.55$	1.525	8	12.2
$1.55 \leq h < 1.60$	1.575	33	51.975
$1.60 \leq h < 1.65$	1.625	29	47.125
$1.65 \leq h < 1.75$	1.7	17	28.9
$1.75 \leq h < 1.85$	1.8	1	1.8

Calculate an estimate of the mean.

142 ÷ 88 = 1.613636...

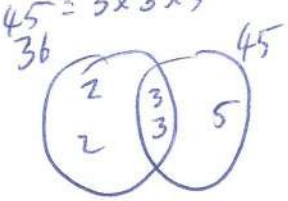
What is the lowest common multiple (LCM) of 36 and 45.

36: 2, 18; 18: 9, 2; 9: 3, 3

45: 5, 9; 9: 3, 3

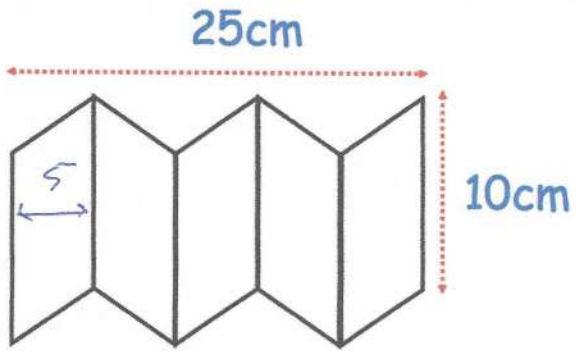
36 = 2×2×3×3

45 = 3×3×5



LCM = 2×2×3×3×5

180



The diagram shows a logo that is made up of 5 identical parallelograms.
Find the area of the logo.

5×10 = 50cm²

50×5 = 250cm²

Which statements below are true?

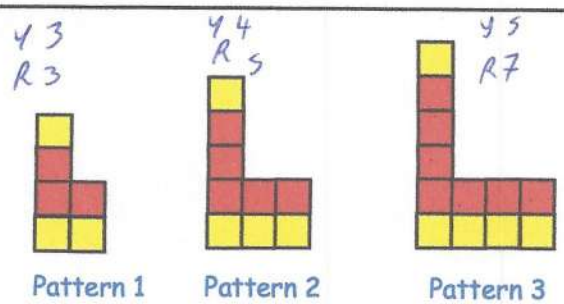
A Pattern 10 has 11 yellow squares ✗

B The number of red squares is always odd ✓

C Every pattern has more red squares than yellow squares ✗

D Pattern 5 has 11 red squares ✓

B & D



Y 6
R 9

P4

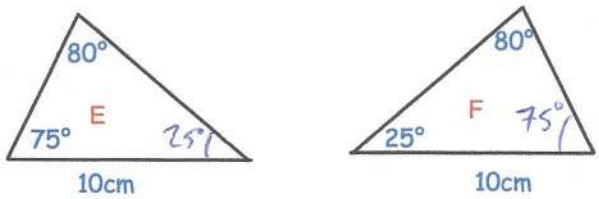
2nd December

Corbettmaths

Natalie invests £600 for 2 years at 10% per year compound interest.
How much interest does she earn?

$600 \times 1.1^2 = 726$

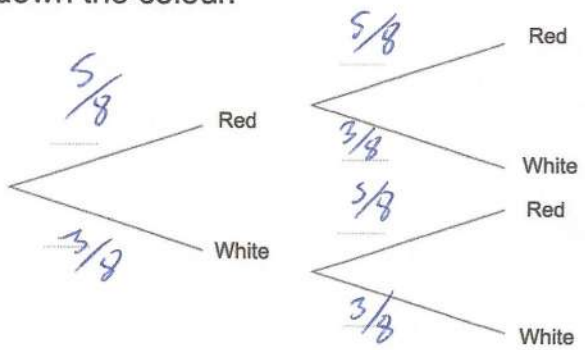
£126



Gillian says that these two triangles are ~~mathematically similar~~. congruent
Is she correct?

Yes

Natalie has 8 socks in a drawer.
5 of the socks are red.
3 of the socks are white.
Natalie takes out a sock at random, writes down the colour and puts it back into the drawer and then takes out a second sock, at random, and writes down the colour.



Complete the probability tree diagram.

Work out the probability that the two socks are the same colour.

$\frac{5}{8} \times \frac{5}{8} = \frac{25}{64}$

$\frac{3}{8} \times \frac{3}{8} = \frac{9}{64}$

$= \frac{17}{32}$

Write down the exact value of Cos 60°

$\frac{1}{2}$

Write down the exact value of Cos 180°

-1

8th December

Corbettmaths

Nicola is organising a concert to raise money for charity.
Entry to the concert is £4.00
The number of people attending concert is 800 to the nearest hundred.

849

What is the greatest possible amount of money she raised for charity?

$849 \times 4 =$

£3396

Expand $(x - 3)(3x + 2)$

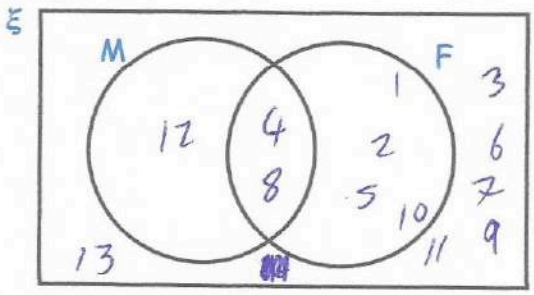
$3x^2 + 2x - 9x - 6$

$3x^2 - 7x - 6$

Time (t minutes)		Frequency	fx
$0 < t \le 10$	5	8	40
$10 < t \le 20$	15	7	105
$20 < t \le 30$	25	2	50
$30 < t \le 40$	35	12	420
$40 < t \le 50$	45	3	135
		32	750

Work out an estimate for the mean

$750 \div 32 = 23.4375$



$\xi = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13\}$
M = Multiples of 4 4 8 12
F = Factors of 40 1 2 4 5 8 10

Complete the Venn diagram

A number is chosen at random

Find $P(M \cup F)$

$\frac{7}{13}$

A number is chosen at random

Find $P(M \cap F)$

$\frac{2}{13}$

9th December

Corbettmaths

Write down **all** the integer values of x that satisfies $-2 \le 2x < 6$

$-1 \le x < 3$

$-1, 0, 1, 2$

Work out

$(8 \times 10^5) \times (3 \times 10^4)$

Give your answer in standard form

24×10^9

2.4×10^{10}

Vanessa buys 6 bags of marshmallows at a total cost of £9. Each bag says that it contains 20 to 30 marshmallows.

She says each marshmallow costs 5p

Explain how Vanessa has reached this conclusion.

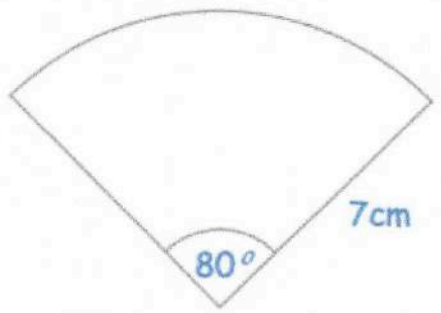
$6 \times 30 = 180$ marshmallows

$900 \div 180 = 5p$ each

Work out the highest possible cost of each marshmallow

$6 \times 20 = 120$ marshmallows

$900 \div 120 = 7.5p$ each



$\frac{80}{360} = \frac{2}{9}$

Calculate the area of this sector.

$\frac{2}{9} \times \pi \times r^2$

$\frac{2}{9} \times \pi \times 7^2 = 34.2 cm^2$

15th December

Corbettmaths

There are red, green and yellow beads in a bag.
The relative frequency of a red is 0.18.
Mrs Jones chooses a bead at random and then puts it back in.

If Mrs Jones repeats this 300 times, how many red beads are expected?

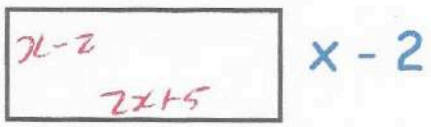
$300 \times 0.18 = 54$

Work out

$$5 \div \frac{3}{4}$$

$\frac{5}{1} \div \frac{3}{4}$

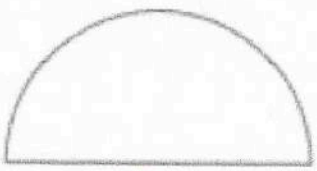
$\frac{5}{1} \times \frac{4}{3} = \frac{20}{3} = 6\frac{2}{3}$



The perimeter of this rectangle is 84cm

Find x

$6x - 6 = 84$
$+6 \quad +6$
$6x = 90$
$\div 6 \quad \div 6$
$x = 15$



$\frac{1}{2}(\pi \times 6^2)$

$\frac{1}{2}(\pi \times 36)$

18π

Calculate the area of this semi-circle.
Leave your answer in terms of π

$18\pi \text{ cm}^2$

James weighed 100kg.
His target was to weigh 80kg or less.
His weight decreased by 3% each month.

$100 \times 0.97^6 = 83.297\text{kg}$

Has he achieved his target after six months?
Show your workings.

No.

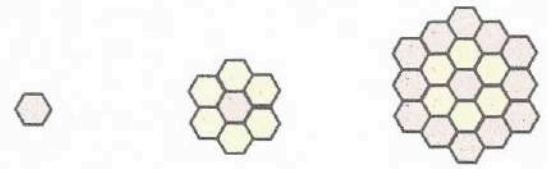
16th December

Corbettmaths

Michael received a pay rise of 14%.
He now receives £319.20 a week.

What was his weekly salary?

114% = 319.20
1% = 2.8
100% = £280

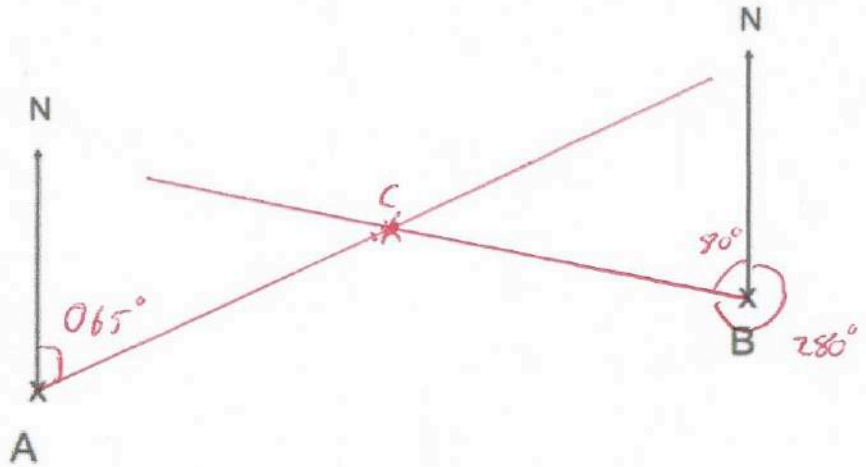


Pattern 1 Pattern 2 Pattern 3

1 +6 7 +12 19

Here is a sequence of patterns made from these tiles.
How many of these tiles are needed to make Pattern number 8?

Pattern	4	5	6	7	8
tiles	37	61	91	127	169
	+18	+24	+30	+36	+42



The bearing of person C from person A is 065°
The bearing of person C from person B is 280°
In the space above, mark the position of person C with a cross (x). Label it C.

Write down the exact value of Tan 0°

0

Write down the exact value of Tan 180°

0

22nd December

Corbettmaths

The front elevation of a solid shape is a triangle.
The side elevation of the solid shape is a triangle.
The plan view of the solid shape is a square.

Write down the name of the shape.

Square based pyramid

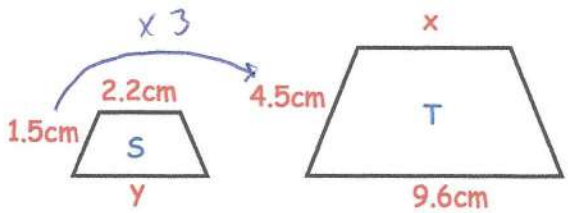
James bought a house.
In the first year the value of the house decreased by 10%.
In the second year the value of the house increased by 10%.

$100 \times 0.9 = 90$
$90 \times 1.1 = 99$

Is the house worth more, less, or the same as what James paid for it?
Explain your answer.

Less by 1%.

Not drawn accurately



Trapezium S and trapezium T are similar.

Find the size of x.

$2.2 \times 3 = 6.6$cm

There are 40 children at a youth club.
There are 23 girls.
9 girls play rounders.
4 boys do not play rounders.

How many boys play rounders at the youth club? 13

	B	G	Total
✓R	13	9	22
✗R	4	14	18
Total	17	23	40

Expand and simplify

$(w + 3)(w + 4) - (w + 2)(w + 7)$

$w^2 + 7w + 12$
$- w^2 + 9w + 14$

$-2w - 2$

23rd December

Corbettmaths

$2\frac{4}{5} + 3\frac{2}{3}$

$\frac{14}{5} + \frac{11}{3}$

$\frac{42}{15} + \frac{55}{15}$

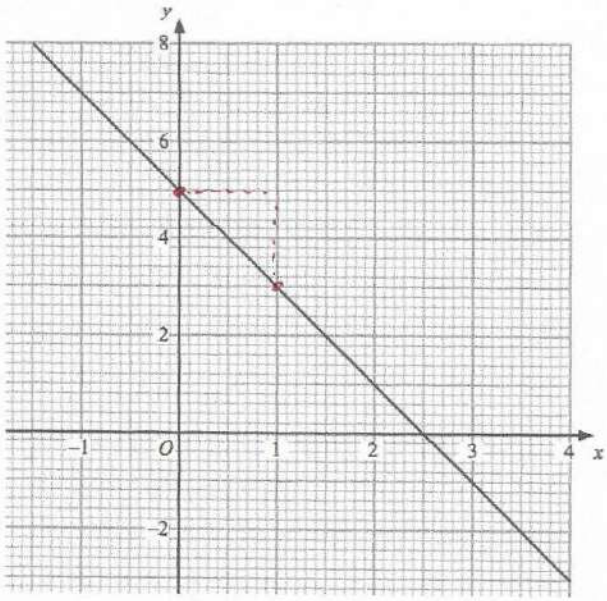
$\frac{97}{15} = 6\frac{7}{15}$

Solve

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

$(x-11)(x+3) = 0$

$x = 11$ or $x = -3$



Find the gradient of the line drawn.

-2

Find the equation of the line drawn.

$y = -2x + 5$

The ratio of adults to children at an annual concert in 2016 is 2:7 and in total 1350 people attended the concert.
The price of an adult ticket is £30 and the price of a child ticket is £20.
35% of the total ticket sales each year is given to a charity.
The amount of money raised for charity in 2016 is 25% more than raised in 2015.

Work out how much was given to the charity in 2015.

$2 + 7 = 9$ $1350 \div 9 = 150$

$150 \times 2 = 300$ Adults $150 \times 7 = 1050$ children

$300 \times 30 = 9000$
$1050 \times 20 = 21000$ } £30000

35% of 30000 = £10500

10500 = 125%

84 = 1%

8400 = 100%

£8400

29th December

Corbettmaths

The table shows the number of sweets in 20 bags.

Number of sweets		Frequency		fx
23	×	1	=	23
24	×	4	=	96
25	×	9	=	225
26	×	3	=	78
27	×	3	=	81

Calculate the mean.

503 ÷ 20 = 25.15

Find the size of each interior angle of a regular 40-sided polygon.

$(n-2) \times 180$

$38 \times 180 = 6840$

$6840 \div 40 = 171°$

or

$360 \div 40 = 9$

$180 - 9 = 171$

Expand and simplify

(9y - 7)(2y + 3)

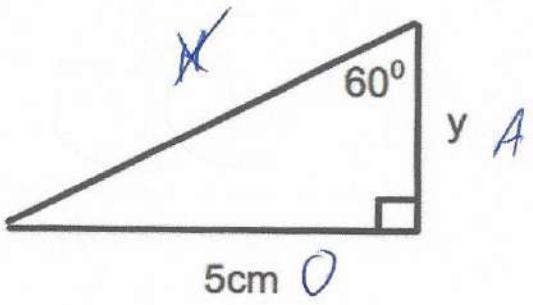
$18y^2 + 27y - 14y - 21$

$18y^2 + 13y - 21$

Calculate length y

$y = \frac{5}{\tan 60}$

$= 2.88675$ cm



Sebastian leaves £4000 in the bank for three years.
It earns compound interest of 5% per year.

4000×1.05^3

$= 4630.50$

Calculate the total amount Sebastian has in the bank at the end of the three years.

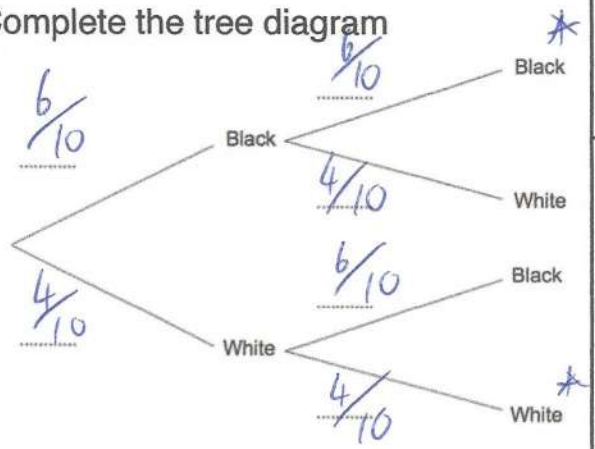
£4630.50

30th December

Corbettmaths

There are 10 socks in a bag.
6 black and 4 white.
A sock is taken at random, put back into the bag, then another is taken.

Complete the tree diagram



What is the probability of two black socks?

P(BB) $\frac{6}{10} \times \frac{6}{10} = \frac{36}{100}$

$= \frac{9}{25}$

What is the probability of two socks of the same colour?

P(aw) $\frac{4}{10} \times \frac{4}{10} = \frac{16}{100}$

$\frac{16}{100} + \frac{36}{100} = \frac{52}{100}$

$= \frac{13}{25}$

Factorise

$x^2 + 2x - 15$

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

Factorise

$x^2 - 8x - 9$

$(x-9)(x+1)$

Patrick invested money into a special savers bank account.
Each year money in the account earns 4% interest.

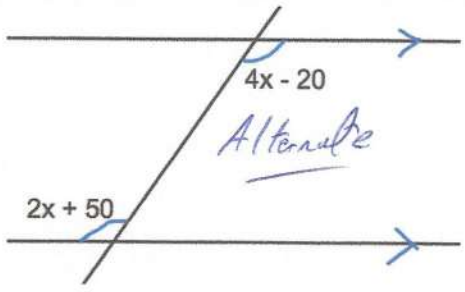
After one year, the total amount of money in the account was £291.20

How much did Patrick invest?

104% = 291.20

1% = 2.80

£280



Alternate

Calculate the size of the angle, 2x + 50.

$4x - 20 = 2x + 50$

$2x = 70$

$x = 35$

$120°$