Using a Calculator

$$\frac{\sqrt{20.4}}{6.2 \times 0.48}$$

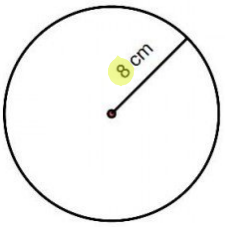
Solve and write down all the numbers on your calculator.

1.5176868

Then round to 1dp.

1.5

Area and Circumference

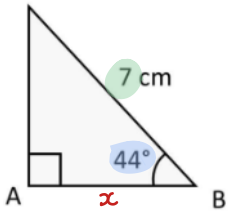


Area = $\pi \times 8^2 = 64\pi =$ 200 cm²

Circumference = $\pi \times 8 \times 2 = 16\pi$ = 50cm

Give your answers to 2 significant figures

Trigonometry



Find the length of AB to 1dp

$x = 7 \times \cos(44) =$ 5.0 cm

Reverse Percentages

In a sale, normal prices are reduced by 25%. ↓ 75%

The sale price of a jumper is £12.75.

Calculate the normal price of the jumper.

75% = 12.75 ÷75
1% = 0.17 ×100
100% = £17

Quadratic Graph

Complete the table for

$y = x^2 - 2x - 4$

x	-2	-1	0	1	2
y	4	-1	-4	-5	-4

Compound Interest

John invests £3000 at 4% compound interest for 7 years.

How much is his investment worth after 7 years?

3000×1.04^7

= £3947.80

Worded Question

Packs of batteries cost £2.85 each.

Ben has £45 to spend on batteries.

Ben buys as many packs of batteries as he can.
Work out how much change he should get from £45

45 ÷ 2.85 = 15.789
15 × 2.85 = 42.75
45 - 42.75 = £2.25

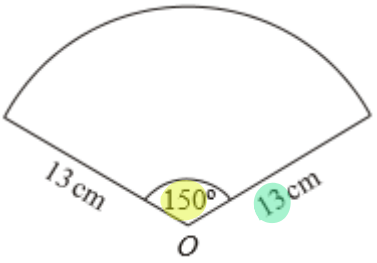
Expressions

Apples cost ***a*** pence each.
Bananas cost ***b*** pence each.

Write an expression for the total cost, in pence, of 3 apples and 5 bananas.

3a + 5b

Area of a Sector



Calculate the area of the sector

$\frac{150}{360} \times \pi \times 13^2 =$ 221.2 cm²

Averages from a Table

Mark asked 50 students how many days they had been late to school last week.

Number of days late		Frequency		
0	×	20	=	0
1	×	8	=	8
2	×	10	=	20
3	×	7	=	21
4	×	5	=	20
				69

Work out the mean

69 ÷ 50 = 1.38

Ratio

5p : 10p
×5 (2 : 3) ×10
10 : 30

Jim has only 5p and 10p coins.

The ratio of 5p coins to the number of 10p coins is 2:3.

Work out the ratio of the total value of the 5p coins : the total value of the 10p coins.

10 : 30

Give your answer in its simplest form.

= 1 : 3

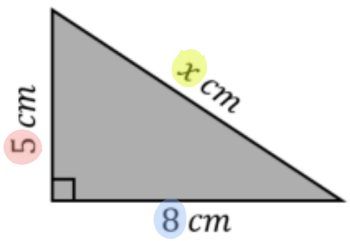
Ordering Decimals

Put in ascending order:

0.202, 0.2, 0.25, 0.222, 0.059

0.059
0.200
0.202
0.222
0.250

Pythagoras' Theorem



Find x

$x^2 = 8^2 + 5^2$

$x^2 = 89$

$x = \sqrt{89} = 9.4\text{cm}$

Percentages

Rail ticket prices increased by 5 %

The price of a rail ticket from London to Ipswich increased by £2.30

5% = 2.30

Work out the price of the ticket before the increase.

5% = 2.30 (x20) → 100% = £46 (x20)

Relative Frequency

If you roll a fair dice 240 times, how many times would you expect to roll a prime number?

1, 2, 3, 4, 5, 6

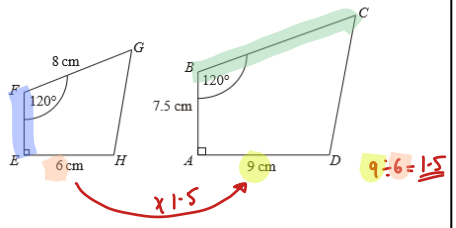
Half are prime.

So

$\frac{1}{2} \times 240 = 120$

Similar Shapes

Shapes *ABCD* and *EFGH* are mathematically similar.



Calculate the length of BC and FE.

BC = 8 x 1.5 = 12cm

FE = 7.5 ÷ 1.5 = 5cm

Reverse Mean

Mary has a number of £1 and £2 coins.

The mean value of all of her coins is £1.80.

What is the smallest number of £1 and £2 coins Mary could have?

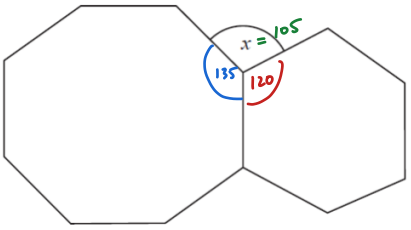
£2 x 4 = £8

£1 x 1 = £1

5 £9

£9 ÷ 5 = £1.80

Connected Polygons



The diagram shows a regular octagon and regular hexagon.

Work out the value of x. 105°

Midpoint of a Line

Find the midpoint of the line joining these points

(2,4) and (6,10)

$\frac{2+6}{2} = 4$ $\frac{4+10}{2} = 7$

= (4, 7)

Currency

£1 = $1.42

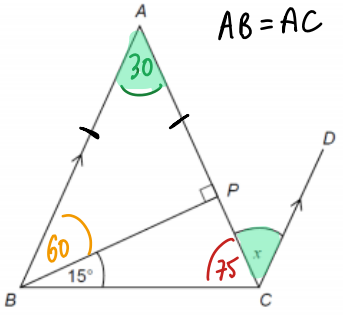
Convert £600 into dollars.

600 x 1.42 = $852

Convert $482 into pounds.

482 ÷ 1.42 = £339.44

Angles in Parallel Lines



Calculate angle x.

x = 30°

Best Buy

200ml for £1.20	Oil	300ml for £1.71

Which offer is better value?

200ml = 120p (÷2) → 100ml = 60p

300ml = 171p (÷3) → 100ml = 57p

Best value

Speed, Distance, Time

A sprinter runs a distance of 200 metres in 25 seconds.

Work out the average speed of the sprinter.

Give your answer in m/s

$\frac{200}{25} = 8\text{m/s}$

Proportion

It takes 4 painters 6 days to paint a house.

How long would it take 2 painters to paint the same house?

4 painters = 6 days (÷2) → 2 painters = 12 days (x2)

Inverse Relationship