Using a Calculator

Work out $\dfrac{\sqrt{2.56 + 3.50}}{8.765 - 6.78}$

Solve and write down all the numbers on your calculator.

1.240154521

Then round to 1dp.

1.2

Area and Circumference

A circle has an area of 50cm²

$\pi r^2 = 50$

$r^2 = \frac{50}{\pi}$

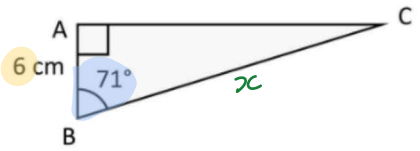
What is its radius?

$r = \sqrt{\frac{50}{\pi}} = 3.99cm$

What is the circumference of the circle?

$\pi \times 3.99 \times 2 = 25.1cm$

Trigonometry



Find the length of BC to 1dp

$x = \frac{6}{\cos(71)} = 18.4cm$

Reverse Percentages

Jacob answered 80% of the questions in a test correctly.

He answered 32 of the questions correctly.

80% = 32

Work out the total number of questions in the test.

80% = 32 ÷8

10% = 4

100% = 40 x10

Quadratic Graph

Complete the table for

$y = x^2 + x - 2$

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

Compound Interest

John invests £800 at 3.5% compound interest for 5 years.

How much is his investment worth after 5 years?

800×1.035^5

$= £950.15$

Worded Question

A set of six numbers have a median of 5.
All of the numbers are even.
The range of the numbers is 6.
The mode of the numbers is 4.

Write down a possible set of six numbers.

Median = 5 (could be 10.)

4, 4, 4, 6, 8, 10

range = 6

Expressions

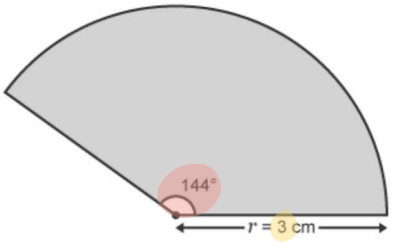
Will is ***w*** years old.
Ben is 3 years older.
Write an expression, in terms of ***w***, for Ben's age.

$w + 3$

Jan is twice as old as Ben.
Write an expression, in terms of ***w***, for Jan's age.

$2(w + 3) = 2w + 6$

Area of a Sector



Calculate the area of the sector

$\frac{144}{360} \times \pi \times 3^2 = 11.3cm^2$

Averages from a Table

Bob asked 40 people how many minutes they took to get to work

Time taken (m minutes)	Frequency	
$0 < m \leq 10$	5x 3 =	15
$10 < m \leq 20$	15x 8 =	120
$20 < m \leq 30$	25x 11 =	275
$30 < m \leq 40$	35x 7 =	245
$40 < m \leq 50$	45x 9 =	405
		1060

Work out an estimate for the mean time taken.

1060 ÷ 40

Ratio

Ann & Bob shared £240 in the ratio 3 : 5

240 ÷ 8 = 30

Ann = 30 x 3 = 90

Bob = 30 x 5 = 150

Ann gave half of her share to Colin.
Bob gave a tenth of his share to Colin.

90 ÷ 2 = 45

150 ÷ 10 = 15

45 + 15 = 60

What fraction of the £240 did Colin receive?

$\frac{60}{240} = \frac{1}{4}$

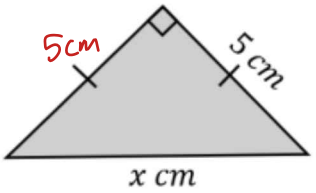
Ordering Decimals

Put in ascending order:

0.517, 0.6, 0.66, 0.622, 0.069

0.069
0.517
0.600
0.622
0.660

Pythagoras' Theorem



Find x

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

$x^2 = 50$

$x = \sqrt{50}$

$x = 7.1$ cm

Percentages

A carton of orange juice contains 540ml.

A special offer carton contains an extra 35%.

$540 \times 1.35 = 729$ml

How many milliliters of orange juice are in the special offer carton?

729ml

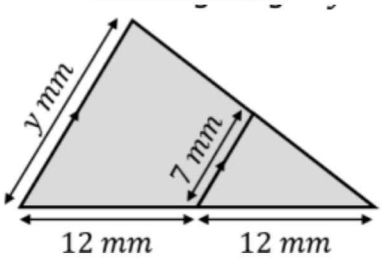
Relative Frequency

Jack sows 300 wildflower seeds. The probability of a seed flowering is 0.7

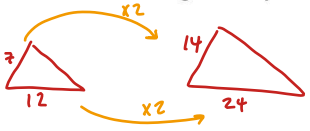
Work out an estimate for the number of these seeds that will flower.

$300 \times 0.7 = 210$

Similar Shapes



Calculate the length of y



y=14mm

Reverse Mean

The mean of eight numbers is 46

Total = $46 \times 8 = 368$

The mean of three of the numbers is 32

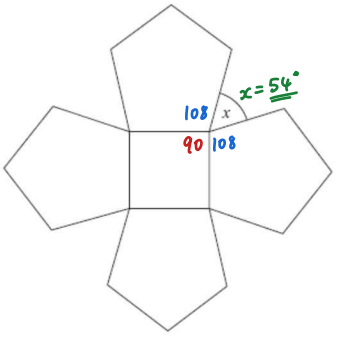
Total = $32 \times 3 = 96$

What is the mean of the other five numbers?

Total = $368 - 96 = 272$

Mean = $\frac{272}{5} = 54.4$

Connected Polygons



The diagram shows a square and 4 regular pentagons. Work out the size of the angle marked x.

Midpoint of a Line

Find the midpoint of the line joining these points

(-10,-6) and (2,4)

$\frac{-10+2}{2} = -4$ $\frac{-6+4}{2} = -1$

$(-4, -1)$

Currency

Sunglasses in the USA cost $35.50.
In England, an identical pair of sunglasses cost £26.99

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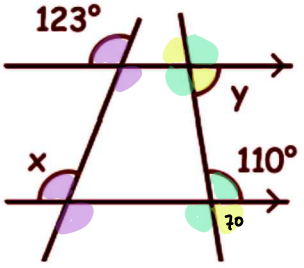
The exchange rate is £1 = $1.42

In which country were the sunglasses cheaper, and by how much?

$35.50 \div 1.42 = £25$

USA cheaper.

Angles in Parallel Lines



Find the value of x and y.

$x = 123°$ $y = 70°$

Best Buy

4 cans for £2.40	**Beans**	6 cans for £3.90

Which offer is better value?

4 cans = 240p

1 can = 60p

6 cans = 390p

1 can = 65p

Better Value

Speed, Distance, Time

Dave drives 15 miles to work. The journey takes 20 minutes.

What is Dave's average speed in miles per hour?

15 miles = 20 mins

45 miles = 60 mins = 1 hour

45mph.

Proportion

The weight of a piece of wire is directly proportional to its length. A piece of wire is 25 cm long and has a weight of 6 grams. Another piece of the same wire is 30 cm long.

Calculate the weight of the 30 cm piece of wire.

25cm = 6g ÷5 → 5cm = 1.2g ×6 → 30cm = 7.2g