Using a Calculator

$$\frac{\sqrt{2.5^2 + 3.75}}{3.9 - 1.7}$$

Solve and write down all the numbers on your calculator.

1.437398936

Then round to 1dp.

1.4

Area and Circumference

A circle has a circumference of 100cm $2\pi r = 100$ $r = \frac{100}{2\pi}$

What is its radius?

r = 15.9cm

What is the area of the circle?

$\pi \times (15.9)^2 = 795.8cm^2$

Trigonometry



$h = \frac{opp}{\sin\theta}$

$h = \frac{11}{\sin(27)}$

Find the length of the hypotenuse

h = 24.2cm

Reverse Percentages

In a sale, normal prices are reduced by 12%. 88%

The sale price of a TV is £242.

Work out the normal price of the TV..

88% = 242 ÷88 → 1% = 2.75 ÷88 → 100% = £275 ×100 ×100

Quadratic Graph

Complete the table for

$y = x^2 - 3x - 1$

x	-2	-1	0	1	2
y	9	3	-1	-3	-3

Compound Interest

A company bought a van that had a value of £12 000

Each year the value of the van depreciates by 25%. 75% = 0.75

Work out the value of the van at the end of three years.

12000×0.75^3

£5062.50

Worded Question

40 people go on a trip.
They go in minibuses that can each seat up to 15 people.
It costs £30 for each minibus and £150 for the group to have use of the leisure centre.
How much will the trip cost per person?

3 minibuses = £90
150 + 90 = £240
£240 ÷ 40 = £6 each

Expressions

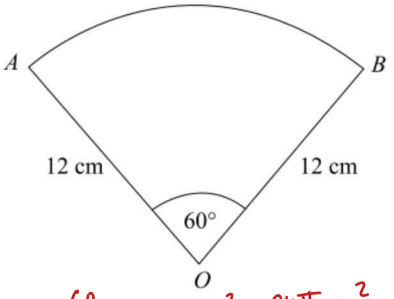
A regular pentagon has a perimeter given by the expression

40x + 30

Write an expression for the length of each side.

$\frac{40x+30}{5} = 8x + 6$

Area of a Sector



$\frac{60}{360} \times \pi \times 12^2 = 24\pi cm^2$

Calculate the area of the sector

$= 75.4cm^2$

Averages from a Table

Days in a month		Frequency		
28	×	1	=	28
29	×	0	=	0
30	×	4	=	120
31	×	7	=	217
32	×	0	=	0
				365

Work out the mean number of days in a month

$\frac{365}{12} = 30.416$

Ratio

Peter won £75 as a prize.

$\frac{4}{5} \times 75 = £60$

He gave 4/5 of the prize money as a present to Roger and Bethan.
Roger and Bethan shared the present in the ratio 2:3

60 ÷ 5 = 12

Work out how much they each got.

Roger = 2 × 12 = £24
Bethan = 3 × 12 = £36

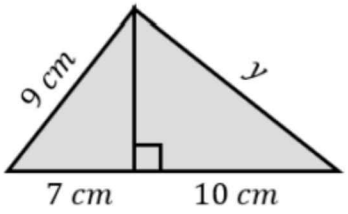
Ordering Decimals

Put in ascending order:

0.772, 0.519, 0.8, 0.72, 0.77

0.519
0.720
0.770
0.772
0.800

Pythagoras' Theorem



Find y

$\sqrt{9^2-7^2} = \sqrt{32}$

$y^2 = 32 + 10^2 = 132$

$y = \sqrt{132} = 11.5\text{cm}$

Percentages

A doctor has 12 000 patients.
4560 of these patients are male.

$12000 - 4560 = 7440$

What percentage of these patients are female?

$\frac{7440}{12000} = 0.62$ (×100)

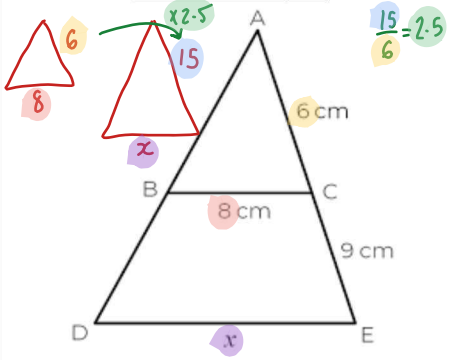
62%

Relative Frequency

The probability that a biased dice will land on a five is 0.3
Megan is going to roll the dice 400 times.
Work out an estimate for the number of times the dice will land on a five.

$0.3 \times 400 = 120$

Similar Shapes



Find the length of x

$8 \times 2.5 = 20\text{cm}$

Reverse Mean

John has eight horses. They have a mean height of 160cm.

Total $= 8 \times 160 = 1280\text{cm}$

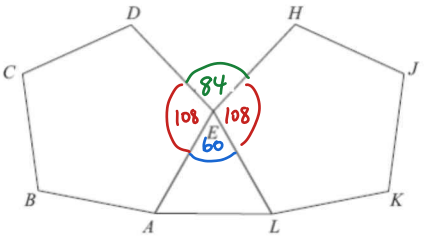
John buys a ninth horse. The height of this horse is 142cm.

$1280 + 142 = 1422\text{cm}$

Find the mean height of all nine horses.

$1422 \div 9 = 158\text{cm}$

Connected Polygons



The diagram shows 2 regular pentagons and an equilateral triangle. Work out the size of angle DEH.

84°

Midpoint of a Line

Find the midpoint of the line joining these points

(0,7) and (6,3)

$\frac{0+6}{2} = 3$ $\quad \frac{7+3}{2} = 5$

(3, 5)

Currency

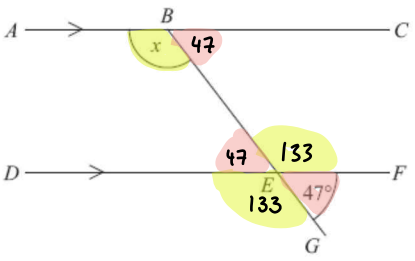
The exchange rate in London is £1 = €1.14

Al wants to change some pounds into euros.

How many euros would he get for £300?

$300 \times 1.14 = €342$

Angles in Parallel Lines



Find the value of x.

$x = 133$

Best Buy

2 for £1	Pens	4 for £1.80

Which offer is better value?

2 pens = 100p
1 pen = 50p

4 pens = 180p
1 pen = 45p
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 minutes (×3)
45 miles = 60 minutes

45 mph

Proportion

It takes 5 people 12 days to pitch a number of tents.

Show that it would take 6 people 10 days to pitch the same number of tents.

5 people = 12 days (÷5)
1 person = 60 days (×5)
6 people = 10 days (×6, ÷6)