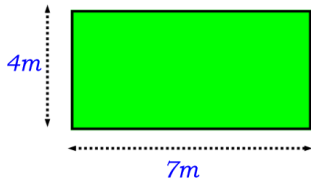# Lots of NUMBER 5 PLUS Answers
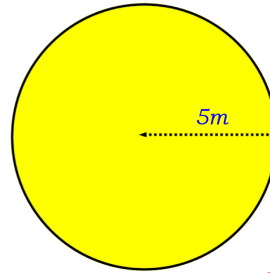
A rectangle measures 7m long and 4 m wide. These are measured correct to the nearest metre.

4m

7m

What are the maximum and minimum values for the length of the rectangle?

6.5≤length<7.5

What is the maxiumum possible area of this rectangle?
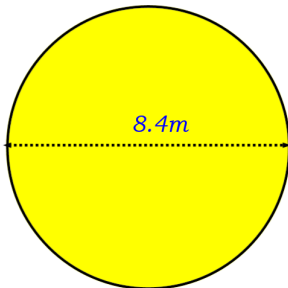
Max Area= 7.5 x 4.5

=33.75 m²

A circle has a radius of 5m. This is measured correct to the nearest metre.

5m

What are the maximum and minimum values for the radius?

4.5≤radius<5.5

What is the maxiumum possible area of this circle?
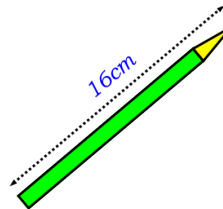
Max Area= π r²

= π x 5.5²

= 94.985m²

A circle has a diameter of 8.4m. This measured correct to 1 decimal place.

8.4m

What are the maximum and minimum values for the diameter?

8.35≤diameter<8.45

What is the minimum possible circumference of this circle?
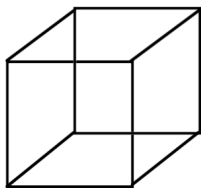
Max Circumference= π d

= π x 8.35

= 26.232 m

A Pencil is 16cm correct to the nearest cm

16cm

What are the maximum and minimum possible values for the length of this pencil?

15.5≤diameter<16.5

8 of these pencils are put end-to-end. What is the smallest possible length of this chain of 8 pencils?

Smallest is 8 x 15.5= 124cm

A cube measures 8cm correct to the nearest cm.

What is the difference between the largest possible and smallest possible volume?

7.5≤length<8.5

Largest is 8.5³ = 614.125cm³

Smallest is 7.5³ = 421.875cm³

Difference = 192.25cm³

Harry puts £30000 into the bank at a 5% compound interest rate.

How much will he have at the end of 3 years?

30000 x 1.05 x 1.05 x 1.05

= 30000 x 1.05³

= £34728.75

Donald puts £30000 into the bank at a 5.2% compound interest rate.

How much will he have at the end of 3 years?

5.2% of £30000 = 300 x 5.2= 1560

1560 x 3 = 4680

after 3years 30000 + 4680 = Answer £34680

This answer is like simple interest. It does not increase by the same amount each year.

30000 x 1.052

then x 1.052

then x 1.052 again

=£34927.57824

Answer £34927.58

What is wrong with this answer?

House prices can go up and down!

Martha buys a house worth £220000.

The next year the value drops by 14%.

The year after it increases by 17%

What is the value of the house now?

220000 x 0.86 x 1.17

= £221364

Answer £221364

House prices can go up and down!

Amy buys a bungalow worth £180000.

The next year the value drops by 17%.

The year after it increases by 17%

Amy is happy because she thinks that her house is worth the same £180000 that she paid.

Explain why Amy is wrong.

180000 x 0.83 x 1.17

= £174798

Answer Unhappy because the house is now worth £174798

Mark buys a car valued at £8900

It loses 14% of the value each year.

How much is it worth after 3 years?

14% of £8900 =

8900 ÷ 100 x 14 = 1246

1246 x 3 = 3738

after 3years   9800 - 3738 = 6062

Answer worth £6062

This answer is more like simple interest. It does not go down by the same amount each year.

8900 x 0.86

then x 0.86

then x 0.86 again

=£5660.8984

What is wrong with this answer?

Mr Paint Brush buys a famous Piece of Art work for £32million.

The next year it increases in value by 33%

Then it is discovered that the painting is a forgery.

It loses 70% of the value during the second year.

It loses a further 30% during the third year.

How annoyed will Mr Brush be?

What will be the value of his painting?
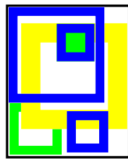
32 x 1.33 x 0.3 x 0.7

= £8.9476

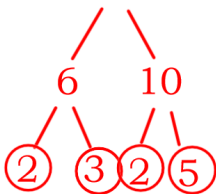Answer £8.9476 million

Answer £8947600

David buys a car valued at £8700

It loses 9% of the value in the first year.

Then for every year after it loses 11% of it's value.

How much is it worth after 3 years?

8700 x 0.91 x 0.89 x 0.89
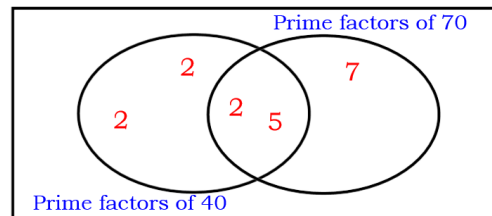
= £6271.0557

Answer £6271.06

Express 60 as a product of prime factors

6   10

2 3 2 5

This can be split up different ways to get into prime factors but you will always get the same numbers at the end.

$60 = 2x2x3x5 = 2^2 x3x5$

Write 40 and 70 as a product of prime factors.

Fill in the Venn diagram of their prime factors.

Prime factors of 70

2

2   2   5   7

Prime factors of 40
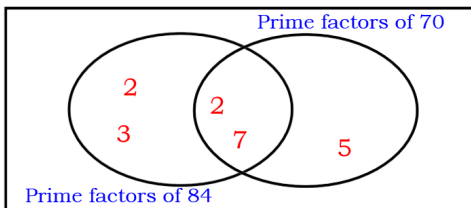
Use this Venn Diagram to find the HCF of 40 and 70

HCF is the overlap of the sets

HCF = 2x5=10

Write 84 and 70 as a product of prime factors.

Fill in the Venn diagram of their prime factors.

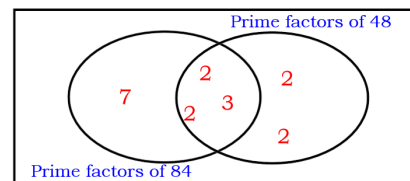Prime factors of 70

2
3   2   7   5

Prime factors of 84

Use this Venn Diagram to find the LCM of 84 and 70

LCM is all the contents of both sets

LCM= 2x2x3x5x7

Answer LCM=420

Write 84 and 48 as a product of prime factors.

Fill in the Venn diagram of their prime factors.

Prime factors of 48

7   2   2   2
     2   3

Prime factors of 84

Use this Venn Diagram to find the LCM of 84 and 48

LCM is all the contents of both sets

LCM= 2x2x2x2x3x7

Answer LCM=336