

Preparation for Core Maths

The Core Mathematics course develops your mathematical knowledge and your ability to think about mathematics in context.

The following questions aim to get you to think about mathematics in context.

They require you to work with percentage and make basic assumptions.

These questions will lead into your first lesson in Core Mathematics and must be completed for the first lesson.

1. One newspaper headline claims



Apple spends far less on R&D than any of its rivals

Further into the story the reporter writes that Apple spends a paltry 2% of revenues compared with 14% at Google and Microsoft.

Can you conclude **from these figures** that Apple does spend far less on R&D?



2. A poster on the London tube advertised property in Corby (a town about an hour and twenty minutes from London).

The headline was **259% cheaper than in London**.

There are several complaints about the poster.

In response the poster company explains that the figure uses information from the [BBC house price guide](#)

The company responsible for the poster states that the average house price in Corby is £126 569 whilst in Greater London the average house price is £454 644.

This makes the average price difference $£454\,644 - £126\,569 = £328\,075$

So the percentage increase from Corby to Greater London $(328\,075 \div 126\,569) \times 100 = 259.2\%$... which makes the 259% quoted in the poster.

Is it really cheaper 259% to live in Corby than London?

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3. The annual number of burglaries in a town fell by 40% in 2012 and then by 30% in 2013.



Does this mean the number of burglaries has fallen by 70% over the two year period?

4. Brian spots the advertisement below in a newspaper.

Genuine Psychic

Would you like to know whether your next child will be a boy or a girl, before conception?

I am so confident that I can predict the gender of your next child that I will return your fee and give you an extra £50 if I'm not correct!!!

Fee £100 per prediction

Although he is sceptical, he has seen the same advertisement several times for a number of years and he presumes that there must be something to the claims if the person has managed to stay in business.

Would it be possible for the psychic to make a profit with this business model if he was not psychic at all?