Real Life Applications of Simultaneous Equations

- Up to now, we have only been able to solve equations with one variable. E.g.s $5x + 3 = 18$, or $x^2 - 3x - 4 = 0$
- Sometimes a situation can arise where we have two different unknowns and in these cases, we need two equations to solve for the two unknowns.
- A German mathematician Gottfried Leibniz is credited for coming up with a method of solving them.
- Simultaneous equations can also be used to find where two lines intersect or meet. This has many applications. See 3 and 4 below.
- Some uses of Simultaneous Equations are outlined below:

1) Say you were organising a charity event and you were charging €5 for kids and €10 for adults. The venue holds a maximum of 500 people and you've a full house. If you count up the money at the end of the night and you've collected €4000, you could use simultaneous equations to easily figure out how many kids and how many adults there were, without counting them all individually.

2) In accounting, linear programming is used by companies to ensure they have the "best" production levels to make maximum profits for a particular set of materials and their labour force. Linear programming involves being able to solve simultaneous equations.

3) Air traffic controllers need to be able to solve simultaneous equations to ensure flight paths of planes don't intersect and that they don't collide!

4) Coastguard or naval vessels would use simultaneous equations if they wanted to intersect another vessel they can see on a radar screen; a drug boat or enemy vessel for example.

5) When choosing a phone plan, one company might be offering a particular package with a calls and texts plan, while another company might be offering a similar package with slightly different prices. Simultaneous equations can be used to figure out at what point the plans would intersect, which can then be used to see which plan is the best value over time.