

NICKS & TRICKS

GUIDE TO 2nd YEAR MATHS

Topic 10 – Simultaneous Equations

Always Remember!

- All About structure! Keep it organized.**

1. Label both equations

$$5x + 4y = 37 \quad (1)$$

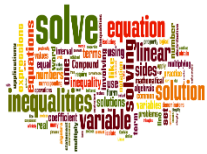
2. Multiply one or both equations so that the x's or y's are equal and opposite and then cancel!

$$x + 2y = 11 \quad (2)$$

$$5x + 4y = 37 \quad (1)$$

Don't forget to sub your answer for x or y back in to get the other one!

$$\begin{array}{r} 5x + 4y = 37 \quad (1) \\ -2x - 4y = -22 \quad (2) \times -2 \\ \hline 3x = 15 \end{array}$$



Worked Example



Electricity is charged to a consumer at a day rate and at a night rate. Day rate units are charged at 14 cent per unit and night rate units are charged at 7 cent per unit. A consumer uses a total of 1100 units for a billing period, at a cost of €129.50.

(i) By letting x equal the number of day rate units used and y equal the number of night rate units used, write two equations to represent the above information.

(ii) Solve these equations to find the number of each type of unit used.

i) $X + Y = 1100$

$$0.14x + 0.07y = 129.50$$

TIP: We don't work with decimals. Multiply it by 10!

ii)

$$x + y = 1100 \quad (-7)$$

TIP: Multiply this by -7 to get rid of the 'y's

$$14x + 7y = 12950$$

$$-7x - 7y = -7700$$

$$14x + 7y = 12950$$

$$7x = 5250$$

$$x = \frac{5250}{7}$$

$$x = 750$$

$$x + y = 1100$$

$$750 + y = 1100$$

$$y = 1100 - 750$$

$$y = 350$$

