

## Algebra 9C

This class deals with a three more worded questions that become simultaneous.

### Equations that become simultaneous

**Example 1** The sum of two numbers is 10. If 5 times the smaller is added to 3 times the larger the result is 32. Find the two numbers.

$$\begin{aligned}
 x &= \text{smaller} & y &= \text{larger} \\
 x + y &= 10 \\
 5x + 3y &= 32
 \end{aligned}$$

**Example 2** A bag contains 10 coins, which are either €1 coins or €2 coins. The total value of the money is €14 find the number €1 coins or €2 coins.

$$\begin{aligned}
 x &= \text{number of } \text{€}1 \\
 y &= \text{number of } \text{€}2 \\
 x + y &= 10 \\
 x + 2y &= 14
 \end{aligned}$$

**Example 3** A farmer has  $2000 \text{ m}^2$  of ground for planting apple trees and blackcurrant bushes. The ground space required for each apple tree is  $50 \text{ m}^2$  and for a blackcurrant bush is  $5 \text{ m}^2$ . The planting of an apple tree cost €20 and the planting of a blackcurrant bush cost €4. The farmer has €1,000 to spend on planting. Find the number of apple trees and the number of blackcurrant bushes.

$$x = \text{apple} \quad y = \text{blackcurrant}$$

$$50x + 5y = 2000$$

$$10x + y = 400$$

$$20x + 4y = 1000$$

$$5x + y = 250$$

$$10x + y = 400$$

$$5x + y = 250$$