

## Number of Solutions

3 options

I. No solutions

↗↗ parallel lines

II.  $\infty$  many solutions

↘↘ overlapping lines  
(= coinciding)

III. One solution

↔ intersecting lines

Xerox WorkCentre 5222

## Systems of Equations

Solve by - trial-and-error  
- graphing  
- substitution  
- elimination

### Elimination

$$\textcircled{1} \quad 3y + 2x - 24 = 0$$

$$\textcircled{2} \quad x - 4y = -37.5$$

$$\begin{array}{r} 2x + 3y = 24 \\ (-2)(x - 4y = -37.5) \end{array}$$

$$\begin{array}{r} 2x + 3y = 24 \\ + \quad [-2x + 8y = 75] \\ \hline 0x + 11y = 99 \Rightarrow y = 9 \end{array}$$

$$3(9) + 2x - 24 = 0$$

$$27 + 2x - 24 = 0$$

$$3 + 2x = 0$$

$$\frac{2x}{2} = \frac{-3}{2}$$

$$x = -1.5$$

$\therefore$  the solution is  $(-1.5, 9)$ .

• The solution to a system of linear equations is the ordered pair  $(x, y)$  that stands for the coordinates of the **point of intersection**.