ACCESS MATHS

Solve: $x^2 + y^2 = 25$
$x + y = 7$

When you have an x^2 and y^2 use the substitution method

Set equation 2 equal to x or y

$$y = 7 - x$$

Sub in place of y in equation 1

$$x^2 + (7 - x)^2 = 25$$

Expand Brackets and simplify

$$x^2 + (7 - x)(7 - x) = 25$$

$$x^2 + 49 - 14x + x^2 = 25$$

$$2x^2 - 14x + 49 = 25$$

Set equal to zero

$$2x^2 - 14x + 24 = 0$$

Factorise and remove a factor first if possible!

$$x^2 - 7x + 12 = 0$$

$$(x - 4)(x - 3) = 0$$

$$x = 4 \text{ and } x = 3$$

Sub values of x into 'y = 7 – x'

$x = 4, y = 3$
$x = 3, y = 4$

ACCESS MATHS

Solve: $x^2 + y^2 = 25$
$x + y = 7$

When you have an x^2 and y^2 use the substitution method

Set equation 2 equal to x or y

$$y = 7 - x$$

Sub in place of y in equation 1

$$x^2 + (7 - x)^2 = 25$$

Expand Brackets and simplify

$$x^2 + (7 - x)(7 - x) = 25$$

$$x^2 + 49 - 14x + x^2 = 25$$

$$2x^2 - 14x + 49 = 25$$

Set equal to zero

$$2x^2 - 14x + 24 = 0$$

Factorise and remove a factor first if possible!

$$x^2 - 7x + 12 = 0$$

$$(x - 4)(x - 3) = 0$$

$$x = 4 \text{ and } x = 3$$

Sub values of x into 'y = 7 – x'

$x = 4, y = 3$
$x = 3, y = 4$