



1. Solve the following simultaneous equations,

$$y - 3x = 4$$

$$x^2 + y^2 = 34$$

(5)

2. Solve the following simultaneous equations,

$$x = 3 + 2y$$

$$x^2 + 2y^2 = 27$$

(5)

Solutions

1.

$y = 4 + 3x$ $x^2 + (4 + 3x)(4 + 3x) = 34$ $x^2 + 16 + 12x + 12x + 9x^2 = 34$ $10x^2 + 24x - 18 = 0$	M1
$5x^2 + 12x - 9 = 0$ $(x + 3)(5x - 3) = 0$	M1
$x = -3$ $x = \frac{3}{5}$	M1
When $x = -3$, $y = 4 + 3(-3)$ $y = -5$	M1
When $x = \frac{3}{5}$, $y = 4 + 3(\frac{3}{5})$ $y = 5\frac{4}{5}$	M1

2.

$(3 + 2y)^2 + 2y^2 = 27$ $(3 + 2y)(3 + 2y) + 2y^2 = 27$ $9 + 4y^2 + 6y + 6y + 2y^2 = 27$	M1
$6y^2 + 12y - 18 = 0$ $y^2 + 2y - 3 = 0$	M1
$(y - 1)(y + 3) = 0$ $y = 1$ $y = -3$	M1
When $y = 1$, $x = 3 + 2(1)$ $x = 5$	M1
When $y = -3$, $x = 3 + 2(-3)$ $x = -3$	M1

