Fill in the Blanks — Solving Non-Linear Simultaneous Equations

Question	State $x =/ y =$ substitution	Substitute and rearrange to give quadratic equation	Solve the quadratic equation	Find corresponding y or x values
$y = x^2 - 5x + 3$ $y = 2x - 7$	$y = 2x - 7$	$2x - 7 = x^2 - 5x + 3$ $0 = x^2 - 7x + 10$	$(x - 2)(x - 5) = 0$ $x = 2$ or $x = 5$	$x = 2, y = 1$ or $x = 5, y = 3$
$x^2 + 2y = 13 - 4x$ $x + y = 5$	$y = 5 - x$	$x^2 + 2(5 - x) = 13 - 4x$ $x^2 + 10 - 2x = 13 - 4x$ $x^2 + 2x - 3 = 0$	$(x + 3)(x - 1) = 0$ $x = -3$ or $x = 1$	$x = -3, y = 8$ or $x = 1, y = 4$
$x^2 + y^2 = 20$ $x - y = 2$	$x = y + 2$	$(y + 2)^2 + y^2 = 20$ $y^2 + 4y + 4 + y^2 = 20$ $2y^2 + 4y - 16 = 0$	$y^2 + 2y - 8 = 0$ $(y + 4)(y - 2) = 0$ $y = -4$ or $y = 2$	$y = -4, x = -2$ or $y = 2, x = 4$
$y + 10 = x^2 + x$ $x - y - 1 = 0$	$y = x - 1$	$(x - 1) + 10 = x^2 + x$ $x + 9 = x^2 + x$ $0 = x^2 - 9$	$(x + 3)(x - 3) = 0$ $x = -3$ or $x = 3$	$x = -3, y = -4$ or $x = 3, y = 2$
$3x^2 - 2y = 7x - 8$ $3x = y - 2$	$y = 3x + 2$	$3x^2 - 2(3x + 2) = 7x - 8$ $3x^2 - 6x - 4 = 7x - 8$ $3x^2 - 13x + 4 = 0$	$(3x - 1)(x - 4) = 0$ $x = \frac{1}{3}$ or $x = 4$	$x = \frac{1}{3}, y = 3$ or $x = 4, y = 14$
$x^2 + y^2 + xy = 31$ $x + y + 1 = 0$	$x = -1 - y$	$(-1 - y)^2 + y^2 + y(-1 - y) = 31$ $1 + 2y + y^2 + y^2 - y - y^2 = 31$ $y^2 + y - 30 = 0$	$(y + 6)(y - 5) = 0$ $y = -6$ or $y = 5$	$y = -6, x = 5$ or $y = 5, x = -6$