

2	Other methods are probably equivalent to one these methods. Apply whichever of these methods is closest. Allow + or – instead of \pm except for final answer.							
2		$(x-2)^2 + \left(y + \frac{k}{2}\right)^2$ $(x-2)^2 + \left(y + \frac{k}{2}\right)^2 + 12 - 4 - \frac{k^2}{4}$ oe; ignore RHS $\frac{k^2}{4} - 8 = 1$ or $-12 + 4 + \frac{k^2}{4} = 1$ oe ft <u>const</u> term $k^2 = 36$ $k = \pm 6$	Allow + or – in both depM1*	M1* A1 M1 A1 [4]	3.1a 1.1 2.1 1.1	$(x-2)^2 + y^2 + ky + 12 - 4 = 0$ M1 $(x-2)^2 + y^2 + ky + 9 = 1$ M1 $(x-2)^2 + (y \pm 3)^2 = 1$ oe A1 $k = \pm 6$ A1	$(x-2)^2 + (y-b)^2 = 1$ M1 $4 + b^2 - 1 = 12$ oe M1 $b = \pm 3$ A1 $k = \pm 6$ A1	$x^2 + y^2 - 4x + ky + 13 = 1$ M1 $x^2 + y^2 - 4x + ky + 4 + 9 = 1$ M1 $x^2 + y^2 - 4x \pm 6y + 4 + 9 = 1$ or $(x-2)^2 + (y \pm 3)^2 = 1$ A1 $k = \pm 6$ A1