Review of completing the square:

$$x^2 + 4x - 1$$

$$x^2 - 5x + 2$$

$$2x^2 + 6x + 1$$

$$-3x^2 + 12x + 5$$

Solve:

$$x^2 + 10x + 2 = 0$$

$$2x^2 - 12x + 9 = 0$$

Find the vertex:

$$x^2 + 4x + 20 = y$$

$$-5x^2 + 20x + 6 = 0$$

Review of completing the square:

$x^2 + 4x - 1$ $(x+2)^2 - 5$

$x^2 - 5x + 2$ $(x - 5/2)^2 - 17/4$

$2x^2 + 6x + 1$ $2(x+3/2)^2 - 7/2$

$-3x^2 + 18x + 5$ $-3(x-3)^2 + 32$

Solve:

$x^2 + 10x + 2 = 0$ $-5 \pm \sqrt{23}$

$2x^2 - 12x + 9 = 0$ $3 \pm \frac{3\sqrt{2}}{2}$

Find the vertex:

$x^2 + 10x + 20 = y$ $(x+5)^2 - 5 = y$

$\downarrow$

$(-5, -5)$

$-5x^2 + 20x + 6 = y$

$\downarrow$

$-5(x-2)^2 + 26 = y$

$(2, 26)$