

5.1B Completing the Square II

Ex. 1 Determine the vertex of $y = 2x^2 - 12x + 7$.

Try using tiles.

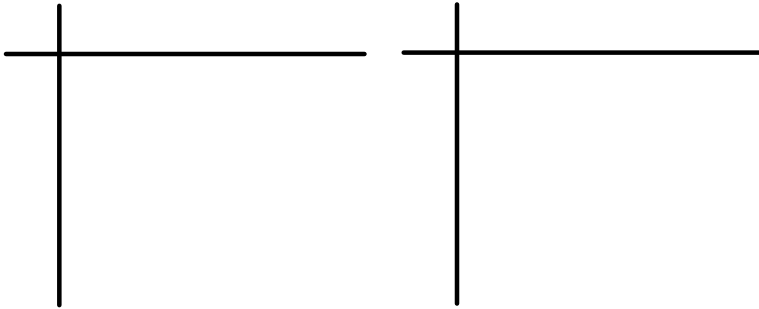
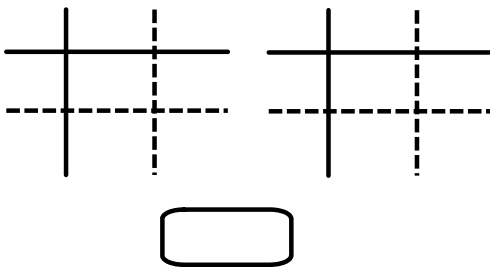


Chart Method

We need 2 identical charts (since $a = 2$). Each chart will represent half the x^2 tiles and half the x tiles: $x^2 - 6x$



Algebraically

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

$$y = 2(x^2 - 6x) + 7$$

$$y = 2(x^2 - 6x + \underline{\quad} - \underline{\quad}) + 7$$

$$y = 2(x^2 - 6x + \underline{\quad}) - \underline{\quad} + 7$$

$$y = 2(x - \underline{\quad})^2 - \underline{\quad}$$

Ex. 2 Determine the vertex of $y = 3x^2 - 6x - 5$.

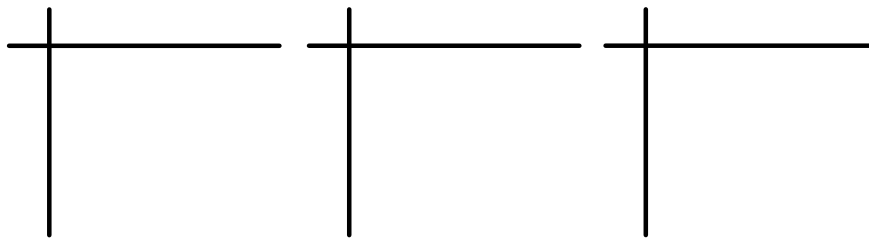
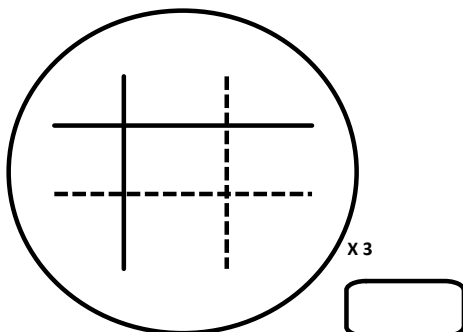


Chart Method

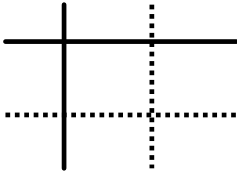


Algebraically

Ex. 3 Write each of the following in vertex form.

a) $y = 5x^2 - 30x + 12$

b) $y = -3x^2 - 12x + 5$



c) $y = -2x^2 + 16x - 3$

Ex. 4 Determine the maximum or minimum point of each parabola.

a) $y = 2x^2 + 8x + 7$

b) $y = 3x^2 - 9x + 4$

Ex. 5 Determine the equation in vertex form, then sketch.

$$y = -2x^2 + 12x - 11$$

