



General form to Vertex form



General Form: $y = 3x^2 + 18x + 25$

$$= 3(x^2 + 6x) + 25$$

$$= 3\left[\underbrace{(x + 3)^2}_{x^2 + 6x + 3^2} - 3^2\right] + 25$$

(Note: An arrow labeled $\div 2$ points from 6x to 3 in the original image)

Vertex Form: $y = 3(x+3)^2 - 2$

Factor out coefficient
of x^2 (only for x terms)

Complete the square

Double-check
& Simplify

