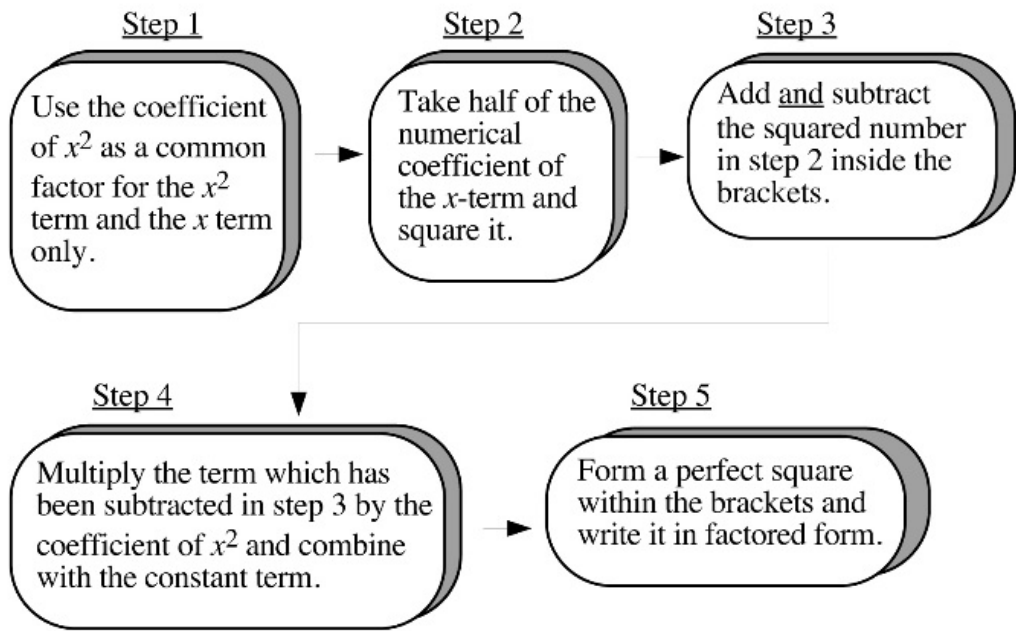


Writing $f(x) = ax^2 + bx + c$ in Standard Form by Completing the Square



Convert $f(x) = 3x^2 - 18x + 20$ to standard form by completing the square. Determine whether the graph of the function f has a maximum or minimum value and state the value.

$a \neq 1$

$$y = 3x^2 - 18x + 20$$

$$y = 3(x^2 - 6x + 9) + 20 - 27 \quad \frac{1}{2}(-6) = -3 \quad (-3)^2 = 9$$

$$y = 3(x - 3)^2 - 7$$

$$y = 3(x - 3)^2 - 7$$



Convert $y = 7 + 10x - 2x^2$ to standard form by completing the square. In what direction does the parabola open? What are the coordinates of the vertex of the parabola?

$$y = -2x^2 + 10x + 7$$

$$y = -2x^2 + 10x + 7$$

$$y = -2(x^2 - 5x + \frac{25}{4}) + 7 + \frac{25}{2}$$

down

$$\frac{1}{2}(-5) = -\frac{5}{2} \quad (-\frac{5}{2})^2 = \frac{25}{4}$$

Complete Assignment Questions #5 - #9

$$y = -2(x - \frac{5}{2})^2 + \frac{39}{2}$$

vertex:
 $(\frac{5}{2}, \frac{39}{2})$