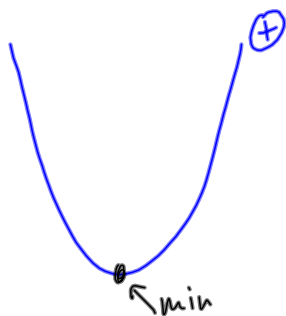


chapter **2** Algebra 2

Section 2.6 Max and Min of Quadratic graphs



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Example 1

Complete the square on each of the following quadratic expressions.
Hence find the minimum value of each expression.

- (i) $x^2 - 8x + 10$ (ii) $4x^2 + 4x + 2$

Related perfect square?

$$(a+b)^2 = a^2 + 2ab + b^2$$

$$x^2 - 8x + \boxed{?}$$

$$a^2 = x^2 \Rightarrow a = x$$

$$\begin{aligned} 2ab &= -8x \\ \frac{2xb}{2x} &= \frac{-8x}{2x} \Rightarrow b = -4 \end{aligned}$$

$$b^2 = +16$$

$$(x-4)^2 = x^2 - 8x + 16$$

$$x^2 - 8x + 10$$

$$x^2 - 8x + 16 - 16 + 10$$

$$(x-4)^2 - 6$$

$$- \quad \downarrow$$

Min. (4, -6)

vertex form
OR complete
square form