

**Completing the Square in a Quadratic Expression - Guided Lesson Explanation****Explanation#1**

$$a^2 - 10a + \underline{\hspace{2cm}}$$

With quadratic expressions like  $x^2 + bx$ , we can complete the square by adding  $(\frac{b}{2})^2$

add  $(\frac{b}{2})^2$  to complete the square.

$$\begin{aligned} & a^2 - 10a + (\frac{b}{2})^2 \\ &= a^2 - 10a + (\frac{-10}{2})^2 \\ &= a^2 - 10a + (-5)^2 \\ &= x^2 - 8x + 25 \end{aligned}$$

**Explanation#2**

**We follow the same format to find the missing whole number.**

$$y^2 - 14y + \underline{\hspace{2cm}}$$

add  $(\frac{b}{2})^2$  as the whole number value to complete the square.

$$\begin{aligned} & y^2 - 14y + (\frac{b}{2})^2 \\ &= y^2 - 14y + (\frac{-14}{2})^2 \\ &= y^2 - 14y + (-7)^2 \\ &= y^2 - 14y + 49 \end{aligned}$$



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### Explanation#3

One more time:

$$y^2 - 16y + \underline{\hspace{2cm}}$$

add  $(\frac{b}{2})^2$  to complete the square.

$$\begin{aligned} & y^2 - 16y + \left(\frac{b}{2}\right)^2 \\ = & y^2 - 16y + \left(\frac{-16}{2}\right)^2 \\ = & y^2 - 16y + (-8)^2 \\ = & y^2 - 16y + 64 \end{aligned}$$

