Perfect Square Trinomial

A quadratic trinomial (with three terms) that factors into a binomial squared

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$$x^2 + 6x + 9 \qquad x^2 - 14x + 49 \qquad x^2 + 8x + 16$$

Binomial Squared

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The relationship between b and c

$$x^2 + 6x + 9 \qquad\qquad x^2 - 14x + 49 \qquad\qquad x^2 + 8x + 16$$

$a = 1 \quad b = 6 \quad c = 9 \qquad a = 1 \quad b = -14 \quad c = 49 \qquad a = 1 \quad b = 8 \quad c = 16$

$$\frac{6}{2} = 3 \quad (3)^2 = 9 \qquad \frac{-14}{2} = -7 \quad (-7)^2 = 49 \qquad \frac{8}{2} = 4 \quad (4)^2 = 16$$

$$(x + 3)^2 \qquad\qquad (x - 7)^2 \qquad\qquad (x + 4)^2$$

Determine the value of c to create a perfect square trinomial

$$x^2 + 2x + c \qquad x^2 - 16x + c \qquad x^2 + 4x + c$$

The method can only be used when $a = 1$

Determine the value of c to create a perfect square trinomial

$$x^2 - 10x + c \qquad x^2 + 5x + c \qquad x^2 + 9x + c$$

The method can only be used when $a = 1$

Determine the value of c to create a perfect square trinomial

$$x^2 + bx + \left(\frac{b}{2}\right)^2$$

$$\left(\frac{b}{2}\right)^2$$

$$\left(x + \frac{b}{2}\right)^2$$

The method can only be used when $a = 1$