

Perfect Square Trinomial

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

$$x^2 + 6x + 9$$

$$x^2 - 14x + 49$$

$$x^2 + 8x + 16$$

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The relationship between b and c

$$x^2 + 6x + 9$$

$$a = 1 \quad b = 6 \quad c = 9$$

$$\frac{6}{2} = 3 \quad (3)^2 = 9$$

$$(x + 3)^2$$

$$x^2 - 14x + 49$$

$$a = 1 \quad b = -14 \quad c = 49$$

$$\frac{-14}{2} = -7 \quad (-7)^2 = 49$$

$$(x - 7)^2$$

$$x^2 + 8x + 16$$

$$a = 1 \quad b = 8 \quad c = 16$$

$$\frac{8}{2} = 4 \quad (4)^2 = 16$$

$$(x + 4)^2$$

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Determine the value of c to create a perfect square trinomial

$$x^2 + 4x + c$$

$$x^2 - 16x + c$$

$$x^2 - 12x + c$$

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

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Determine the value of c to create a perfect square trinomial

$$2x^2 + 8x$$

$$3x^2 - 18x$$

$$4x^2 - 48x$$

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Determine the value of c to create a perfect square trinomial

$$x^2 + bx + c$$

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

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