

### Perfect Squares

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$$\begin{aligned} & \cdot (a+b)^2 \\ & = a^2 + 2ab + b^2 \\ & \cdot (a-b)^2 \\ & = a^2 - 2ab + b^2 \end{aligned}$$

How to Use the Perfect Square Identity As a Shortcut in Exams

### Difference of Two Squares

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

note:

$$\begin{aligned} & (a-b)(a+b) \\ & = a^2 + ab - ab - b^2 \\ & = a^2 - b^2 \end{aligned}$$

How to Factor the Difference of Two Perfect Squares

### Example of Perfect Squares

$(x+1)^2$	$(2x-5)^2$	$(x+2\sqrt{3})^2$
$x^2 + x - x - 1$	$4x^2 - 20x + 5^2$	$x^2 + 4\sqrt{6}x + 2\sqrt{3}^2$
	$4x^2 - 20x + 25$	$x^2 + 4\sqrt{6}x + 12$

### Examples of Difference of Two Squares

$(x-1)(x+1)$	$(2m+5)(2m-5)$
$x^2 + x - x - 1$	$4m^2 - 10m + 10m - 25$
$x^2 - 1$	$4m^2 - 25$

$$3x^2 - \sqrt{15} + \sqrt{15}$$

$$(\sqrt{3}x + \sqrt{5})(\sqrt{3}x + \sqrt{5})$$

$$3x^2 - 5$$

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