

TOPIC: FACTORING TRINOMIALS OF THE FORM $x^2 + bx + c$

Factor Trinomials of the Form $x^2 + bx + c$

◆ Recall: *Multiply* two binomials $(x + p)(x + q)$ into a trinomial $x^2 + bx + c$ using the distributive property/FOIL.

► Factor a trinomial back into two binomials by finding p & q that **multiply** to c and **add** to b .

New

Factoring $x^2 + bx + c$

Multiply (FOIL) →

$$(x + 3)(x + 7) = x^2 + 7x + 3x + 21 = x^2 + 10x + 21$$

← *Factor*

Multiply to $c = \underline{\hspace{2cm}}$
Add to $b = \underline{\hspace{2cm}}$

EXAMPLE

Factor the given polynomial.

(A)

$$x^2 + 3x - 28$$

$p \cdot q = \underline{\hspace{2cm}}$	$p + q \text{ must} = \underline{\hspace{2cm}}$
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$$(x + \underline{\hspace{2cm}})(x + \underline{\hspace{2cm}})$$

(B)

$$x^2 - 11x + 30$$

$p \cdot q = \underline{\hspace{2cm}}$	$p + q \text{ must} = \underline{\hspace{2cm}}$
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$$(x + \underline{\hspace{2cm}})(x + \underline{\hspace{2cm}})$$

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PRACTICE

Factor the following trinomials completely.

(A) $y^2 - 7y + 12$

(B) $z^2 - 11z + 30$

EXAMPLE

Factor the trinomial completely.

$$x^2 - 5xy + 6y^2$$