

# Factoring Trinomials

## X-Box Method

## Section 9.3: Factoring Trinomials

Factoring a trinomial in the form  $x^2 + bx + c$ . (no leading coefficient.)

$$(x+2)(x+3)$$

$$x^2 + \underline{5x} + 6$$

$$6x^2$$

$$3x \quad 2x$$

$\rightarrow$  last

$$\begin{array}{c} 6x^2 \\ 3x \quad + \quad 2x \\ 5x \\ \rightarrow \text{middle} \end{array}$$

	$x$	$2$
$x$	$x^2$	$2x$
$3$	$3x$	$6$

	$x$	$2$
$x$	$x^2$	$+2x$
$3$	$+3x$	$+6$

$$x^2 + 2x + 3x + 6$$

$$x^2 + 5x + 6 \checkmark$$

$$x^2 - 8x + 15$$

$$15x^2$$

$$15x \quad 1x$$

$$-5x \quad -3x$$

~~$$\begin{array}{c}
 15x^2 \\
 -5x \quad x \quad -3x \\
 + \\
 -8x
 \end{array}$$~~

$$(x-3)(x-5)$$

	$x$	$-3$
$x$	$x^2$	$-3x$
$-5$	$-5x$	$+15$

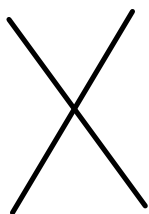
$$x^2 - 5x - 3x + 15$$

$$x^2 - 8x + 15 \checkmark$$

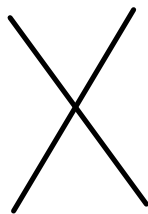
## Practice

Factor each trinomial. Check your answer.

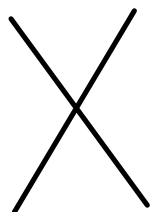
$$x^2 + 6x + 9$$



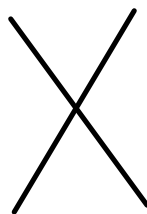

$$m^2 + m - 20$$




$$a^2 - 8a + 15$$




$$y^2 - 3y - 18$$




## Practice

Factor each trinomial. Check your answer.

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

$$(x+3)(x+3)$$

<del><math>9x^2</math></del>	x	$x^2$	$3x$
<del><math>3x</math></del>	3	$3x$	$9$

$$m^2 + m - 20$$

$$(m+5)(m-4)$$

<del><math>-20m^2</math></del>	m	$m^2$	$-4m$
<del><math>5m</math></del>	5	$5m$	$-20$

$$a^2 - 8a + 15$$

$$(a-3)(a-5)$$

<del><math>15a^2</math></del>	a	$a^2$	$-3a$
<del><math>-5a</math></del>	-5	$-5a$	$15$

$$y^2 - 3y - 18$$

$$(y-6)(y+3)$$

<del><math>-18y^2</math></del>	y	$y^2$	$3y$
<del><math>-6y</math></del>	-6	$-6y$	$-18$

# Homework

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