

I will be able to simple trinomial expressions

Minds on Expand

Action! Factoring Day 2 - simple trinomials

Consolidation Practice and exit question

Minds on

Expand

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

$$y = x^2 - 6x + 3x - 18$$

$$y = x^2 - 3x - 18$$



Factored Form	Expanded Form
$y = (x + 2)(x + 3)$	$y = x^2 + 5x + 6$
$y = (x + 1)(x + 2)$	$y = x^2 + 3x + 2$
$y = (x + 3)(x + 3)$	$y = x^2 + 6x + 9$
$y = (x + 3)(x + 4)$	$y = x^2 + 7x + 12$
$y = (x + 2)(x + 4)$	$y = x^2 + 6x + 8$
$y = (x + 1)(x - 3)$	$y = x^2 - 2x - 3$
$y = (x - 2)(x + 5)$	$y = x^2 + 3x - 10$
$y = (x - 3)(x - 5)$	$y = x^2 - 8x + 15$

- 2) Compare the constant term in each trinomial, c , with the constant terms in the factors. What do you notice?

To get the last number,
multiply the factored
numbers together.

- 3) Compare the coefficient of x in each trinomial, b , with the constant terms in the factors. What do you notice?

To get the middle number,
add the factored numbers
together.

4) Use your observations in steps 2 and 3 to factor the following

$$\text{a) } x^2 \overset{+}{\circlearrowleft} + 11x \overset{\times}{\circlearrowright} + 30$$

$$= (x+5)(x+6)$$

$$\text{b) } x^2 \overset{+}{\circlearrowleft} - 8x \overset{\times}{\circlearrowright} + 7$$

$$= (x-1)(x-7)$$

$$\text{c) } x^2 \overset{+}{\circlearrowleft} + 2x \overset{\times}{\circlearrowright} - 24$$

$$(x+6)(x-4)$$

$$\text{d) } x^2 \overset{+}{\circlearrowleft} - 2x \overset{\times}{\circlearrowright} - 15$$

$$= (x+3)(x-5)$$

*If two numbers multiply to a negative, one is positive and one is negative.

If those same two numbers add to a positive, the positive number is bigger.

Whiteboard Practice

Factor each of the following.

*Find two numbers that multiply to the final number and add to the middle number.

$$x^2 + 6x + 8$$
$$= (x + 2)(x + 4)$$

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

2 numbers are +1 and +2

$$= (x+1)(x+2)$$

$$x^2 - 2x - 8$$

We need two numbers that multiply to -8 and add to -2.

Because they multiply to a negative, one is positive, one is negative.

Because they add to a negative, the bigger number is negative.

$$= (x+2)(x-4)$$

$$x^2 - 7x + 12$$

$$(x-3)(x-4)$$

$$x^2 + 10x + 24$$
$$= (x + 4)(x + 6)$$

$$x^2 - 5x - 14$$
$$= (x - 7)(x + 2)$$

Example 1: Factor each expression, if possible.

a) $x^2 - x - 72$

$$= (x+8)(x-9)$$

b) $a^2 - 13a + 36$

$$(a-4)(a-9)$$

c) $x^2 + x + 6$

$$= \cancel{(x+2)(x+3)}$$

impossible!

d) $3y^3 - 21y^2 - 24y$

If we don't just have x^2 , or a^2 , etc... out front, first we have to common factor.

$$= 3y(y^2 - 7y - 8)$$

$$= 3y(y+1)(y-8)$$

Consolidation