

What's Going On?

Checking In

Minds on

Factoring...*so far*

Action!

Factoring when $a \neq 1$

Consolidation

Factor It!

Learning Goal - I will be able to factor
standard form equations when $a \neq 1$.

is not

$$y = ax^2 + bx + c$$

$$y = 1x^2 + 5x + 6$$

$$y = (x+2)(x+3)$$

Minds on

Factoring... *so far*

We have factored a few types of standard form equations so far.

Simple Trinomials

$$y = x^2 + 2x - 15$$


To factor these, find two numbers

that multiply to -15

and add to +2.

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



Factoring... *so far*

We have factored a few types of standard form equations so far.

Difference of Squares

$$y = x^2 - 16$$

To factor these, find two numbers

that multiply to -16

and add to 0.

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

Minds onFactoring... **so far**

We have factored a few types of standard form equations so far.

Common Factor

$$y = \frac{3x^2}{3x} + \frac{6x}{3x}$$

To factor these, first divide

each term by the greatest common

factor. In this case $3x$.

$$y = 3x(x + 2)$$


Minds on

Factoring... *so far*

We have factored a few types of standard form equations so far.

Common Factor

$$y = -4x^2 + 20$$

To factor these, first divide

each term by the greatest common

factor. In this case -4.

$$y = -4(x^2 - 5)$$

Action!

Factoring when $a \neq 1$

Factor

$$y = 4x^2 + 8x + 4$$

Uhoh! Our a -value is not 1!

When this happens, our first step is

to divide 4

from each term.

So... we just need to divide

each term by 4.

Action!

Factoring when $a \neq 1$

Factor

$$y = \frac{4x^2}{4} + \frac{8x}{4} + \frac{4}{4}$$

$$y = 4(x^2 + 2x + 1)$$

Make sure you
keep the 4!!

Look familiar?
We've seen these
before!

Now, all that's left is to factor
the part inside the brackets just
like before!

Action!Factoring when $a \neq 1$

Factor

$$\begin{aligned} & 4x^2 + 8x + 4 \\ &= 4(x^2 + 2x + 1) \\ &= 4(x + 1)(x + 1) \end{aligned}$$

Find two numbers that multiply to +1 and add to +2!

Just like yesterday, this is a perfect square trinomial!
We can factor it once more!

Action!

Factoring when $a \neq 1$

Factor

$$\begin{aligned} & 4x^2 + 8x + 4 \\ &= 4(x^2 + 2x + 1) \\ &= 4(x + 1)(x + 1) \\ &= 4(x + 1)^2 \end{aligned}$$

Consolidation

Steps to Factoring

Divide

1. "Factor Out" the a-value if possible.

$$y = \frac{5x^2}{5} - \frac{5x}{5} - \frac{30}{5}$$

2. Factor the new trinomial in brackets.

$$y = 5(x^2 - 1x - 6)$$

↑ ↑
+ x

The factors are

$$\begin{array}{l} +1-6 \\ -1+6 \\ (+2)(-3) = -1 \end{array}$$

$$y = 5(x+2)(x-3)$$

Consolidation**Factor It!**

1. $2x^2 + 16x + 30$

2. $4x^2 + 20x - 24$

3. $3x^2 - 12x + 12$

4. $-3x^2 - 30x - 72$

5. $-2x^2 + 4x + 96$

6. $5x^2 + 20x$

7. $-7x^2 + 49x$

8. $3x^2 - 27$

9. $6x^2 - 96$

10. $-3x^2 + 48$

Consolidation

Factor It!

1. $2x^2 + 16x + 30$

Consolidation

Factor It!

$$2. 4x^2 + 20x - 24$$

Consolidation

Factor It!

3. $3x^2 - 12x + 12$

Consolidation

Factor It!

4. $-3x^2 - 30x - 72$

Consolidation

Factor It!

5. $-2x^2 + 4x + 96$

Consolidation

Factor It!

$$6. 5x^2 + 20x$$

Consolidation

Factor It!

$$7. -7x^2 + 49x$$

Consolidation

Factor It!

8. $3x^2 - 27$

Consolidation

Factor It!

$$9. 6x^2 - 96$$

Consolidation

Factor It!

10. $-3x^2 + 48$