First Quiz 5·1 (on expanding)

Today's Learning Goal(s):

By the end of the class, I will be able to:

a) factor trinomials of the form $x^2 + bx + c$

Any questions from last day's homework?
p. 234 #3, 4, 5*, 6
*answer for 5c is wrong
Enrichment: pp. 234-235 7d, 12, 15
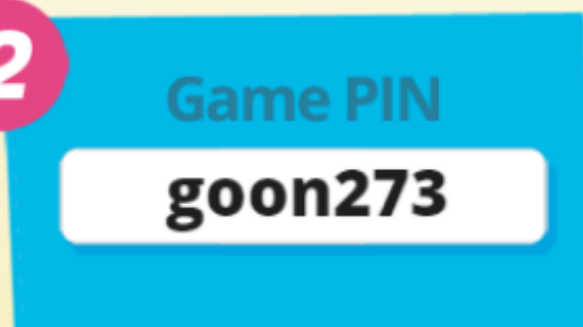
Knowledge Hook?

Knowledge Hook?

p.234

6a) $\underline{mx + my} + \underline{2x + 2y}$

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

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

Let's Try Knowledge Hook!

Take out your cell phone; **seriously.**

If asked, set up a student account.

How to Join

1 Go to... playkh.com ❯

2 Game PIN
goon273

MPM 2DI   5.4 Factor Quadratic Expressions of the Form $x^2 + bx + c$ (Day 1)

"The Background"   Date: Apr. 25/16

Expand the following: (Look for a pattern)

1) $(x+3)(x+5)$

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

$= x^2 + 8x + 15$

2) $(x+5)(x+6)$

$= x^2 + 6x + 5x + 30$

$= x^2 + 11x + 30$

3) $(x+2)(x+7)$

$= x^2 + 9x + 14$

4) $(x-4)(x-2)$

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

$= x^2 - 6x + 8$

5) $(x-1)(x-5)$

$= x^2 - 6x + 5$

6) $(x-7)(x-3)$

$= x^2 - 10x + 21$

7) $(x-7y)(x-3y)$

$= x^2 - 10xy + 21y^2$

Ex.1 Factor the following trinomials, where **last term is** **positive**, using the Product/Sum method:

1) $x^2 + 8x + 15$

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

$\begin{array}{cc} 1 & 15 \\ 2 & \\ 3 & 5 \\ 4 & \\ 5 & \end{array}$

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

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

$\begin{array}{cc} 1 & 12 \\ 2 & 6 \\ 3 & 4 \end{array}$

3) $x^2 - 22x + 40$

$= (x-2)(x-20)$

$\begin{array}{cc} 1 & 40 \\ 2 & 20 \\ 3 & \\ 4 & 10 \\ 5 & 8 \\ 6 & \\ 7 & \end{array}$

4) $x^2 - 14x + 40$

$= (x-4)(x-10)$

5) $x^2 - 13xy + 40y^2$

$= (x-5y)(x-8y)$

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

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

7) $x^2 + 5x + 2$

D.N.F.

Summary 1:

When the **last term is POSITIVE**, the two factors have ☞ **the same** sign, and must ☞ **add** to get the middle term.

The **middle sign** indicates the sign of ☞ **both factors**.

Ex.2 Factor the following trinomials, where the *last term is negative*, using the Product/Sum method:

1) $x^2 + 18x - 40$

$= (x-2)(x+20)$

1   40
+2   -20

3
4   10
5   8
6
7

- + = 18

2) $x^2 - 18x - 40$

$= (x-20)(x+2)$

3) $x^2 + 6x - 16$

$= (x-2)(x+8)$

-1   +16   15
-2   +8   6
3
-4   +4

4) $x^2 - 14x - 72$

$= (x-18)(x+4)$

1   72
2   36
3   24
4   18
5   8
6   12
7
8   9

5) $x^2 + 9x - 10$

$= (x-1)(x+10)$

6) $x^2 - 13x - 30$

$= (x-15)(x+2)$

Summary 2:

When the *last term is negative*, the two factors have **opposite** signs, and must **add** to get the middle term.
The middle sign indicates the sign of **the larger factor**.

Always Remember: Factoring is the opposite of expanding.
               Therefore, you can always check your factors by expanding.

(It may take an extra minute or two, but you will catch when you make an error with your signs.)
For example, you may want to check number 6 from above to see if you have the correct signs.

Ex.3   Factor completely.

$3x^2 - 39x + 90$

$= 3(x^2 - 13x + 30)$

$= 3(x-3)(x-10)$

Today's entertainment:pp. 240-241 #3ab, 4ab, 5dg, 6a, 7ab, 8ab, 9ab, 11ab
Enrichment: p. 241 #15b, 17b

Quiz 5.2 Wednesday?
(on factoring)