Unit 7: Factoring

Lesson 4: Factoring completely

Objectives:

- I can factor a trinomial
- I can completely factor a quadratics using the different methods I learned.
- I can solve quadratics in real-life.

Agenda:

- Warm up: factoring
- Factoring
- Applications

Focus Questions:

- How can I factor trinomial quadratics with leading coefficient other than 1?
- How can completely solve a quadratic?

Vocabulary: Trinomial Quadratic, Leading coefficient, Factors

Homework: HW 7-4

Web support:

https://www.youtube.com/watch?v=AMEau9OE6Bs

https://www.youtube.com/watch?v=IKyUuvulIbk

https://www.youtube.com/watch?v=8_yrM-RVCJ8

Web practice:

http://www.mesacc.edu/~scotz47781/mat120/notes/factoring/trinomials/a_is_not_1/trinomials_practice.html

http://www.xpmath.com/forums/arcade.php?do=play&gameid=93

https://www.ixl.com/math/algebra-2/factor-quadratics

https://www.ixl.com/math/algebra-1/factor-polynomials

https://www.khanacademy.org/math/algebra/polynomial-factorization/factoring-quadratics-2/e/factoring_polynomials_by_grouping_1

Group Activity: Groups of 5.

Find 4 problems for each type of factoring. You must write the problem and the factored form to each. You will be quizzed on this by the end of the block. You will have 50 min to complete the activity. Each group will be allowed to use one computer, otherwise, use our notes.

1) GCF
2) DOPS
3) Trinomials with leading coefficient 1
4) Trinomial with leading coefficient more than 1.
5) Factoring completely.

Name: _____Name; _____

Day 5. Mixed factoring: Name each type of factoring needed first then apply it.

1. $8xy + 4xy^2$	2. $9x^2 - 1$
3. $x^2 + 8x + 7$	4. $14x^2y^2z + 21xy^2z^2$
5. $4x^2 - 49$	6. $x^2 - 11x + 10$
7. $9x^3 - 9x^2$	8. $36x^2 - 1$
9. $x^2 + 4x - 12$	10.
11. $2x^2 - x - 10$	12. $11x^2 - 10x - 1$

When you factor completely, make sure you are using the GCf first, if not, then DOPS, then continue.

Factor the following trinomials completely:

1) $2x^2 - 18$

2) $2x^2 + 6x - 108$

3) $5x^2 + 10x + 20$

4) $180x^2 - 5$

5) $2x^2 + 22x + 60$

6) $5x^2 - 30x + 40$

7) $24x^3 - 54x$

8) $6x^2 + 66x + 60$

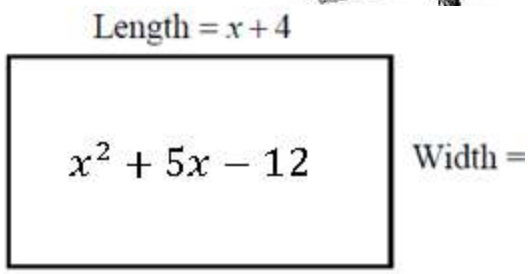
9) $4x^2 - 2x - 20$

10) $7x^2 - 28y^2$

Challenge yourself:

1. A rectangle has dimensions as shown below in terms of an unknown variable, *x*.

a) Find a binomial expression for the Width of the rectangle in terms of *x*. Justify your answer based on the expressions for the rectangle's length and area.



b) If the width of the rectangle is 20, what is the length and the area?

2.An I-phone 8 rectangular box has a front side with an area of $x^2 + 14x + 40$.

a. Determine the box's length and width (dimensions of the box)

b. If the width is 20 cm. determine the length of the box in inches.

$2(c-d) + w(c-d)$

4) $x(p-5) - 18(p-5)$

5. The dimensions of a rectangular room are $(2x+1)$ meters and $(x-2)$ meters.

a) Write an equation that represent the area of the room in.

b) If x=5, evaluate the Length, width and the area of the room?

Name: _____ Date: _____

Homework 7-5

Factor the following Trinomials Completely:

1. $3x^2 + 9x - 54$	2. $2x^3 - 14x^2 + 20x$

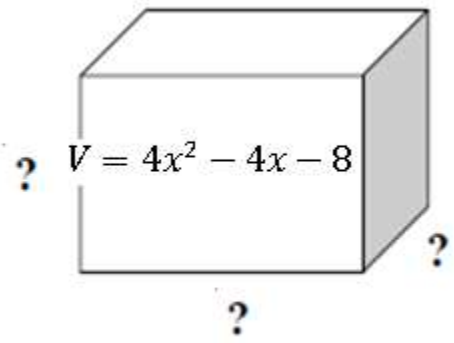
3. $20x^2 - 45$	4. $5x^2 - 75x + 250$
5. $3x^3 - 75x$	6. $4x^4 - 64y^4$
7. $4x^3 - 10x^2 - 66x$	8. $125x^4 - 20y^4$

9. $6x^3 - 2x^2 - 4x$	10. $54x^2 - 6y^2$
11. $2x^2 + 13x + 21$	12. $5x^2 - 21x + 4$

14. Recall that the volume of a rectangular solid (a box) is given by $V = L\,(W)(H)$. If a particular rectangular solid has a volume of $2x^2 + 4x - 30$

a. How would you represent the length, width and height of the solid? Justify your answer.

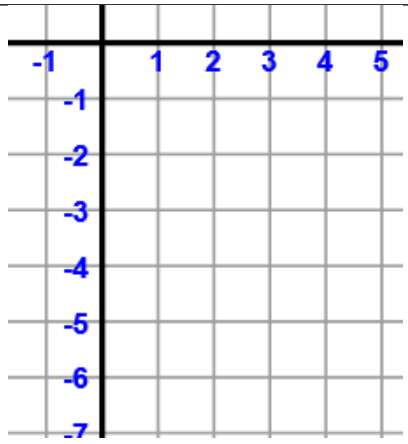
b. if $x = 10$ what are the height, width, length and volume of the box?

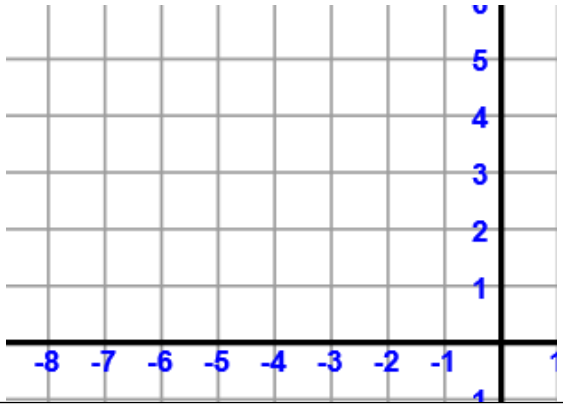


Graph the following Trinomial Quadratics:

2. $x^2 + 10x + 21$

1. $x^2 - 4x - 5$

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