

A1 S2 w5d3 X-Box 1

Alg 1 Week 5 Block

Warm Up

1. Skill 10: Solve the system using and algebraic method and check your answer.

$$8m + 5p = 38$$

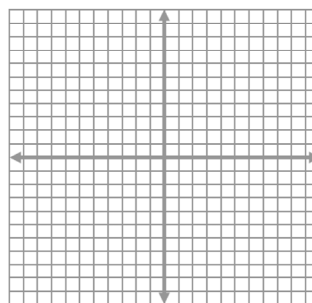
$$2p - 8m = 4$$

check:

2. Skill 11: Solve the system of linear inequalities and check a point in the solution.

$$y < 3x$$

$$x - y \leq 8$$



Check:

3. Skill 12: Simply Exponential Expressions. Simplify, leaving no negative exponents. Show all steps.

$$\frac{(2x^{-2} \cdot x)^2 \cdot x}{6x^3 \cdot x^4}$$

4. Skill 13 Multiply the polynomials and simplify.

$$(3x - 2)(2x^2 + x - 5)$$

5. Fill in the "diamond" problems. Multiply to make the top, add to make the bottom.

$$\begin{array}{c} \diagup \quad \diagdown \\ 88 \\ \diagdown \quad \diagup \\ 19 \end{array}$$

$$\begin{array}{c} \diagup \quad \diagdown \\ -70 \\ \diagdown \quad \diagup \\ 9 \end{array}$$

$$\begin{array}{c} \diagup \quad \diagdown \\ 48 \\ \diagdown \quad \diagup \\ 16 \end{array}$$

6. Factor out the GCF.

a. $6x^3 + 20x$

b. $77y^2 + 121y^3$

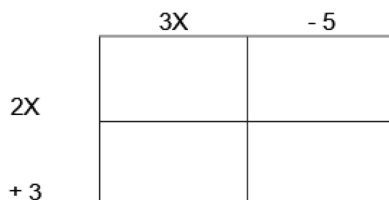
c. $16x^2 + 8x + 2$

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Factoring with the X-Box Method

Recall how we learned to multiply polynomials using the box method:



Now we are going to **reverse** this process. That is, take our final polynomial and figure out what 2 polynomials were multiplied to get that answer. This is called factoring, so we are **factoring with the X-Box method**.

Example 1: Factor $2x^2 + 7x + 6$

Step 1: Any GCF? If so, factor it out.

Step 2: Make your X and fill in the numbers. To do this you must find what number multiplies to 12 and adds to 7. **You must choose these numbers carefully** or your answer will be wrong.



Step 3: Make your box (generic rectangle). Put your first term in the first box. Put your last term in the last box. Put your “magic numbers” (the ones you selected for your X) into the middle two boxes, in any order you choose.



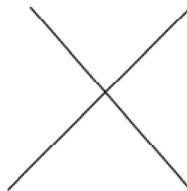
Step 4: Factor out the G.C.F. from each row and column. Your teacher will guide you.

Step 5: Check your answer by multiplying your two factors together.

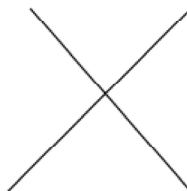
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Let's try more examples:

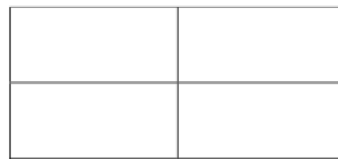
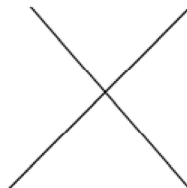
Example 2: Factor $3x^2 - 7x - 6$



Example 3: Factor $x^2 + 3x + 2$



Example 4: Factor $4x^2 - 9$ (Hint: make this into a trinomial)



Example 5: Factor $4x^2 + 4x - 3$

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Name _____

Let's play X-Box #1

Set up an X and a box to factor each polynomial.

1. $x^2 - 3x - 10$

2. $6x^2 - 5x - 4$

3. $2x^2 + 5x - 7$

4. $x^2 - 6x + 8$

5. $x^2 - 16$
(hint: $x^2 + 0x - 16$)

6. $x^2 + 9x + 18$

7. $6x^2 + 11x - 10$

8. $5x^2 + 19x - 4$

9. $9x^2 - 4$
(hint: $9x^2 + 0x - 4$)

10. $3x^2 + x - 10$

11. $x^2 + 4x + 4$

12. $6x^2 + 5x - 4$

13. $x^2 - 10x + 25$

14. $25x^2 - 1$

15. $4x^2 + 12x + 9$