

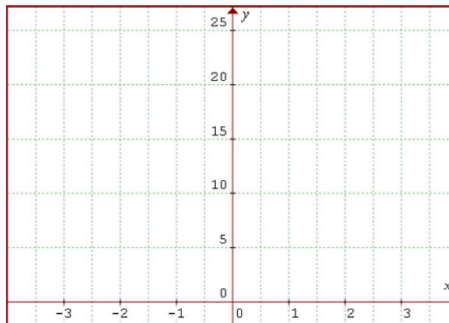
Alg 1 Week 4 Friday Warm Up

Determine whether each rule represents exponential growth or decay. Explain how you know.

1.  $y = 4 \cdot 3^x$

2. Graph the exponential function  $y = 3 \cdot 2^x$

x	Work	y
-2		
-1		
0		
1		
2		
3		



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

$$\left( \frac{3p^{-3} \cdot 2p}{7p^2 \cdot 2p^3} \right)^2$$

4. Use the Box Method to multiply:

a.  $4x^2(6x - 2)$

b.  $7x(5 - 8x)$

5. Complete the diamonds

a)  $\begin{array}{c} 35 \\ \diagdown \quad \diagup \\ 7 \end{array}$

b)  $\begin{array}{c} 32 \\ \diagdown \quad \diagup \\ 18 \end{array}$

c)  $\begin{array}{c} -48 \\ \diagdown \quad \diagup \\ -8 \end{array}$

Word Problems: show all work

6. Ellen took a total of 14 quizzes over the course of 7 weeks. At this rate, how many quizzes will Ellen have taken after attending 8 weeks of school this quarter?

7. Jeanette jarred 6 liters of jam after 2 days. How many days did Jeanette spend making jam if she jarred 15 liters of jam?

## A1 S2 w4d4 8-2 Factor out GCF

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Alg 1 Week 4 Friday

### Factoring Monomials

Write the prime factorization of each. Do not use exponents.

1)  $25n^2$

2)  $18xy$

3)  $12a$

4)  $21y^2$

5)  $81a$

6)  $92q$

7)  $36x^3$

8)  $24h$

9)  $48x^2$

10)  $92xy$

11)  $18x^2$

12)  $50x$

Alg1 Week 4 Fri CW **Factoring Rule #1: Factor out the GCF**



**T**o factor polynomial expressions, start by finding the *greatest common factor* of the individual terms. To do this, write the prime factorization of each term separately, and then circle the factors they all have in common.

Example 1: Factor  $2x^2 + 4x$

$$2x^2 = (2) \cdot x \cdot (x)$$

$$4x = (2) \cdot 2 \cdot (x)$$

The GCF is  $2x$ .  
So,  $2x^2 + 4x = 2x(x + 2)$

Check:  $2x(x + 2) = 2x^2 + 4x$

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

$$3x^2 = (3) \cdot x \cdot x$$

$$6x = (3) \cdot 2 \cdot x$$

$$-3 = (3) \cdot -1$$

The GCF is  $3$ .  
So,  $3x^2 + 6x - 3 = 3(x^2 + 2x - 1)$

Check:  $3(x^2 + 2x - 1) = 3x^2 + 6x - 3$

**Factoring out a common monomial**

- Step 1: Factor each term. (If a term is negative, factor out a negative one!)
- Step 2: Build the *GCF* from the common values.
- Step 3: Rewrite the binomial as the product of the *GCF* and the unused values.
- Step 4: Check by multiplying.

Use the process described above to factor out the greatest common factor from each.

1. Factor this expression:  $5y - 10$

$$5y = \underline{\hspace{2cm}}$$

$$-10 = \underline{\hspace{2cm}}$$

$$5y - 10 = \underline{\hspace{1cm}}(\underline{\hspace{1cm}} - \underline{\hspace{1cm}})$$

2. Factor this expression:  $4t^2 + 5t$

$$4t^2 = \underline{\hspace{2cm}}$$

$$5t = \underline{\hspace{2cm}}$$

$$4t^2 + 5t = \underline{\hspace{1cm}}(\underline{\hspace{1cm}} + \underline{\hspace{1cm}})$$

3. Factor this expression:  $10x^2 - 15x$

$$10x^2 = \underline{\hspace{2cm}}$$

$$-15x = \underline{\hspace{2cm}}$$

$$10x^2 - 15x = \underline{\hspace{1cm}}(\underline{\hspace{1cm}} - \underline{\hspace{1cm}})$$

4. Factor this expression:  $24a + 15$

$$24a = \underline{\hspace{2cm}}$$

$$15 = \underline{\hspace{2cm}}$$

$$24a + 15 = \underline{\hspace{1cm}}(\underline{\hspace{1cm}} + \underline{\hspace{1cm}})$$

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**Practice Factoring Rule #1**

Use the prime factoring method to factor out the greatest common factor from each expression:

5.  $6y^2 - 10y =$

$6y^2 =$  \_\_\_\_\_

$-10y =$  \_\_\_\_\_

$6y^2 - 10y =$  \_\_\_\_ (\_\_\_\_ \_\_\_\_)

6.  $40t^2 + 5t^3 =$

\_\_\_\_\_

\_\_\_\_\_

$40t^2 + 5t^3 =$  \_\_\_\_ (\_\_\_\_ \_\_\_\_)

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

\_\_\_\_\_

\_\_\_\_\_

$-x^2 + 2x =$  \_\_\_\_ (\_\_\_\_ \_\_\_\_)

8.  $-4t^2 - 5 =$

\_\_\_\_\_

\_\_\_\_\_

$-4t^2 - 5 =$  \_\_\_\_ (\_\_\_\_ \_\_\_\_)

9.  $3x^2y + 4xy =$

\_\_\_\_\_

\_\_\_\_\_

$3x^2y + 4xy =$  \_\_\_\_ (\_\_\_\_ \_\_\_\_)

10.  $3x^2y - 6xy =$

\_\_\_\_\_

\_\_\_\_\_

$3x^2y - 6xy =$  \_\_\_\_ (\_\_\_\_ \_\_\_\_)

11.  $4xy^2 + 2y^2 =$

\_\_\_\_\_

\_\_\_\_\_

$4xy^2 + 2y^2 =$  \_\_\_\_ (\_\_\_\_ \_\_\_\_)

12.  $-30x^3 + 15x^2 + 5x =$

\_\_\_\_\_

\_\_\_\_\_

$-30x^3 + 15x^2 + 5x =$  \_\_\_\_ (\_\_\_\_ \_\_\_\_ \_\_\_\_)