March 4, 2019, Monday

sub work

March 5, 2019, Tuesday

Determine if the sequence is geometric. If it is, find the common ratio.

1) 4, 16, 64, 256, ... $r = \frac{16}{4} = 4$, $r = \frac{64}{16} = 4$ Yes

2) 2, 5, 10, 17, ... NO $r = \frac{5}{2} = 2.5$, $r = \frac{10}{5} = 2$

Find the three terms in the sequence after the last one given.

3) −2, −6, −18, −54, ... $r = \frac{-6}{-2} = 3$ ×3 ×3 ×3 −162, −486, −1458

4) 3, 9, 27, 81, ... ×3 243, 729, 2187 $r = \frac{9}{3} = 3$

Find the recursive formula.

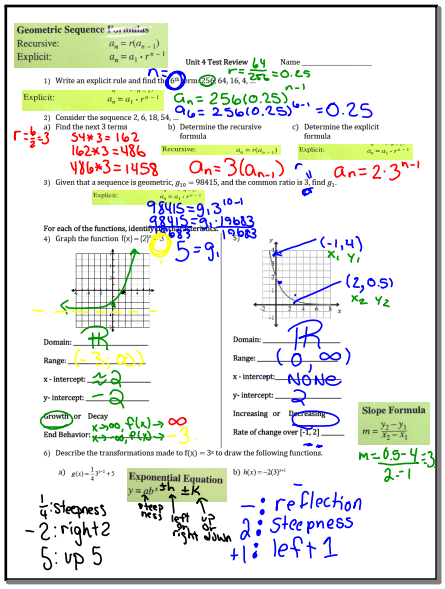
5) −2, 4, −8, 16, ... $r = \frac{4}{-2} = -2$ $a_n = -2(a_{n-1})$

Find the explicit formula.

6) −1, −2, −4, −8, ... $r = 2$ $a_n = -1(2)^{n-1}$

...test

Feb 28-8:11 AM



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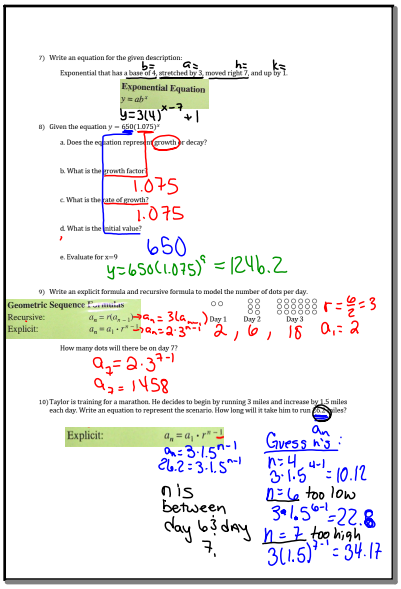
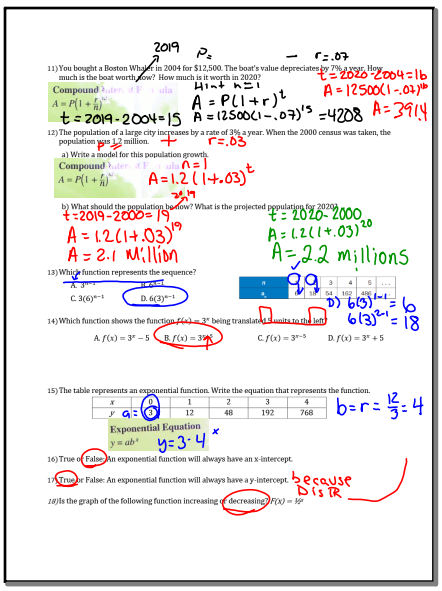
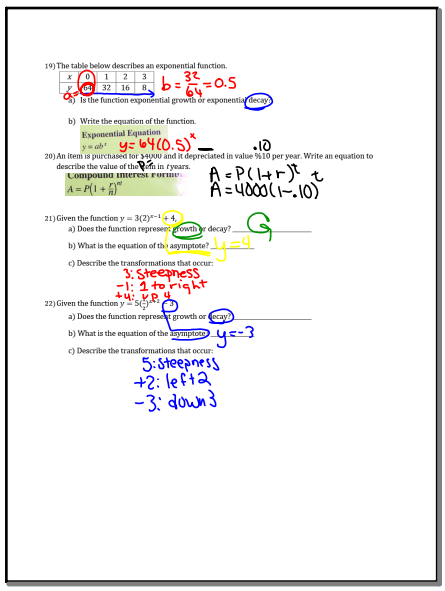






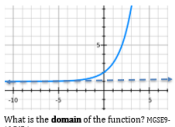
March 6, 2019, Wednesday

6th & 11th term

The table shows a given sequence. If the pattern continues, find the 6th term of the sequence. MGSE9-12.F.BF.2

Term Number	1	2	3	4	5
Sequence	2	4	8	16	32

The function $f(x) = 2^x + 1$ is modeled on the graph below. Use the graph to answer questions #6 – 7.



7) What is the **domain** of the function? MGSE9-12.F.IF.4

a) $(-\infty,\infty)$
b) $(0,\infty)$
c) $(1,\infty)$
d) $(-\infty,1)$

8) Use the graph above to fill in the blank. MGSE9-12.F.IF.4

End behavior: As $x \rightarrow \infty$, $y \rightarrow$ _____.

a) $-\infty$
b) ∞
c) 0
d) 1

...test

Feb 28-8:11 AM

March 7, 2019, Thursday

1) Samir made a pattern shown below. What number belongs in the position indicated by the question mark? MGSE9-12.F.BF.2

$9, 3, 1, \frac{1}{3}, ?, \frac{1}{27}, \ldots$

a) $\frac{1}{9}$
b) -2
c) $\frac{1}{9}$
d) -3

10) Which table **best** describes a function with exponential decay? MGSE9-12.F.IF.4

a)

x	f(x)
1	81
2	27
3	9
4	3

b)

x	f(x)
1	80
2	70
3	60
4	50

c)

x	f(x)
1	80
2	76
3	72
4	68

d)

x	f(x)
1	2
2	4
3	8
4	16

21) **Given the function** $y = 2\left(\frac{1}{3}\right)^{x+1} - 5$,

a) Does the function represent an (circle one)

exponential growth or exponential decay

b) What is the equation of the asymptote?

$y =$ _____

Feb 28-8:13 AM

GSE Algebra I Unit 3A – Factoring Quadratics 1

Name: _____ Date: _____

GCF Factoring

Introduction to Factoring out GCF

★"Factor" simply means to **UN**DISTRIBUTE.★

Distributed Version	Factored Version
	$5x(x + 3)$
	$2x^2(x - 4)$
$2x^2 - 4x$	
$15x^2 - 5x + 30$	

More formal Definition:

- ***Factoring:*** *Writing the polynomial as a product.*

Steps to Factoring Out a GCF:

- ★ Find the GCF of all its terms (number and/or variables). For variables ALL the terms must have the variable. *Choose the smallest exponent!*
- ★ The GCF goes to the LEFT!
- ★ Write the polynomial as a product by *dividing* the original terms of the polynomial by the GCF.
- ★ The remaining factors in each term will form a polynomial. You'll always have the same number of terms you started with.

Factor using a GCF:

- $4x + 6y$
- $6x^3 - 9x^2 + 12x$
- $y^5 - y^2 + y^2$

Feb 28-9:04 AM

GSE Algebra I Unit 3A – Factoring Quadratics 1

PRACTICE: Factor each polynomial using a GCF.

1. $10x + 45$
2. $28x - 63$
3. $18a + 42$
4. $8x + 24$
5. $18x^2 - 15x + 39$
6. $27a^2 + 81$
7. $72a^3 + 33a^2 - 42a^3$
8. $15x^2 + 30x^4 - 45x^3$
9. $4x^5 + 16x^2 - 44$
10. $14x^2 + 7x - 42$

Feb 28-9:04 AM

Name _____ Date _____

~Factoring the difference of two squares Notes~

What is the difference of two squares?

- **Must have** ____ _____**squares**
- **Must have** _____ **(difference)**
- **A** _____ **is a** _____ **square if the** _____ **is an** _____ **number.**

$4x^2 - 81$ *and* $x^2 - 16$

Examples:

1. $x^2 - 16$	2. $x^2 - 100$
3. $4x^2 - 25$	4. $9 - y^2$
5. $2x^2 - 8$	

Extra Practice:

1) $9x^2 - 1$
2) $4n^2 - 49$
3) $36k^2 - 1$
4) $p^2 - 36$
5) $2x^2 - 18$
6) $196n^2 - 144$

Mar 1-8:44 AM

GSE Algebra I

Name _____ Date_____

Difference of Two Perfect Squares ($a^2 - b^2$)

1. $n^2 - 25$	2. $4x^2 - 121y^2$
3. $196t^2 - 1$	4. $100x^2 - 49$
5. $2x^2 - 162x$	6. $16x^2 - 36$
7. $8x^2 - 18$	8. $15x^2 - 60y^2$
9. $68x^2 - 17$	10. $25x^2 - 49y^2$
11. $50x^4 - 98x^2y^2$	12. $45x^2 - 20y^2$

Mar 1-8:46 AM

March 8, 2019, Friday

Factor the common factor out of each expression, if possible.

1) $-5v^3 - 10v^2 - 20$

2) $9x^3 + 9x + 12$

3) $4x^3 + 3x^2 + 5$

Feb 28-8:13 AM

ntro to Factoring Quadratics Name:

1. Find two numbers that sum to **8** and have a product of **12** _____
2. Find two numbers that sum to **5** and have a product of **6** _____
3. Find two numbers that sum to **5** and have a product of **-14** _____
4. Find two numbers that sum to **-8** and have a product of **12** _____
5. Find two numbers that sum to **16** and have a product of **15** _____
6. Find two numbers that sum to **-4** and have a product of **-21** _____
7. Find two numbers that sum to **1** and have a product of **-56** _____
8. Find two numbers that sum to **-14** and have a product of **40** _____
9. Find two numbers that sum to **0** and have a product of **-25** _____
10. Find two numbers that sum to **8** and have a product of **16** _____
11. **Multiply the following:**

a. $(x+6)(x+3)$

$x^2 + \_\_\_\_x + \_\_\_\_$

Notice: What is the sum of the constants in each binomial above?

Notice: What is the product of the constants in each binomial above?

b. $(x+7)(x-2)$

$x^2 + \_\_\_\_x + \_\_\_\_$

Notice: What is the sum of the constants in each binomial above?

Notice: What is the product of the constants in each binomial above?

Feb 28-9:09 AM

Unit 3a Day 2 Notes Factoring Trinomials when a = 1

MCC9-12.A.SSE.3a: I can factor a quadratic expression to reveal the zeroes of the function it defines.

Now let's factor trinomials! (3 terms)

- Remember, we undo multiplying!

Example 1: $x^2 + 5x + 6$

1. Is there a GCF? Yes or No

To factor a trinomial, it breaks down into a product of binomials (2 terms each)

What are the factors of 6 (what pairs multiply to 6)? **Which pair adds to be 5?**

Answer: (x) (x)

Now you try!

1. $x^2 + 7x + 12$	**2.** $x^2 + 12x + 20$
3. $x^2 + 8x + 12$	**4.** $x^2 + 6x + 9$
5. $x^2 - x - 12$	**6.** $x^2 - 2x - 24$
7. $x^2 - 6x + 8$	**8.** $x^2 - 11x + 24$

Feb 28-9:10 AM

GSE Algebra I Unit 3A – Factoring Quadratics

Name _____ Date_____

Factoring Trinomials ($ax^2 + bx + c$)

Factor each trinomial completely. *Hint - #8-10 take out a GCF 1st!*

1. $x^2 - 5x - 14$	2. $x^2 - 2x - 24$
3. $x^2 + x - 20$	4. $x^2 - 5x - 66$
5. $x^2 - 10x - 24$	6. $x^2 + 7x - 18$
7. $x^2 - 6x - 16$	8. $2x^3 + 12x^2 + 18x$
9. $3x^2 + 12x - 63$	10. $2x^3 - 6x^2 - 20x$

Feb 28-8:44 AM

Feb 28-8:44 AM

Feb 28-8:46 AM

Feb 28-9:26 AM

GSE Algebra 1 Name _____

Compare/Contrast: Linear, Quadratic, and Exponential Functions Notes

Attribute	Linear Functions	Quadratic Functions	Exponential Functions
Rate of change			
Domain & Range			
Intercepts			
Asymptotes			
End Behavior			

Feb 28-8:39 AM

Examples

Rate of change			
Domain & Range			
Intercepts			
Asymptotes			
End Behavior			

Functions to Graph and Discuss:

$f(x) = 2x + 3$ $f(x) = 2x^2 + 3$ $f(x) = 2^x + 3$

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4. This graph represents a quadratic function.

a. Extrema: _____ b. Axis of Sym: _____

c. Zeros: _____ d. y-intercept: _____

e. Domain: _____ f. Range: _____

g. Increasing: _____ h. Decreasing: _____

5. The quadratic function f(x) has these characteristics:

- The vertex is located at (8, −2).
- The range is $-2 \le f(x) < \infty$.

Which graph could be f(x)?

a) b) c) d)

6. Use the information for a given quadratic function to sketch a picture of the function.

Domain: $-\infty < x < \infty$
Range: $y \ge -2$

Increasing: $-1 < x < \infty$
Decreasing: $-\infty < x < -1$

There is no stretch or shrink ($a = 1$)

Feb 28-8:49 AM

Feb 28-9:11 AM

Feb 28-8:50 AM