March 4, 2019, Monday

sub work

Feb 28-8:11 AM

March 5, 2019, Tuesday

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

1) 4, 16, 64, 256, ...

2) 2, 5, 10, 17, ...

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

3) −2, −6, −18, −54, ...

4) 3, 9, 27, 81, ...

Find the recursive formula.

5) −2, 4, −8, 16, ...

Find the explicit formula.

6) −1, −2, −4, −8, ...

...test

Feb 28-8:11 AM

Algebra 1 ~ Day 4, 3/1/2018 Unit 4 Test Review Name

1) Write an explicit rule and find the 6th term: 256, 64, 16, 4, ...

2) Consider the sequence 2, 6, 18, 54, ...

a) Find the next 3 terms b) Determine the recursive formula c) Determine the explicit formula

3) Given that a sequence is geometric, $a_{10} = 98415$, and the common ratio is 3, find a_1

For each of the functions, identify the characteristics.

4) Graph the function $f(x) = (2)^x - 3$

Domain: _____

Range: _____

x - intercept: _____

y- intercept: _____

Growth or Decay

End Behavior: _____

5)

Domain: _____

Range: _____

x - intercept: _____

y- intercept: _____

Exponential Equation

$y = ab^x$

6) Describe the transformations made to $f(x) = 3^x$ to d...

a) $g(x) = \frac{1}{4}3^{x-2} + 5$

b) $h(x) = -2(3)^{x+1}$

7) Write an equation for the given description:

Exponential that has a base of 4, stretched by 3, moved right 7, and up by 1.

Exponential Equation

$y = ab^x$

8) Given the equation $y = 650(1.075)^x$

a. Does the equation represent growth or decay?

b. What is the growth factor?

c. What is the rate of growth?

d. What is the initial value?

e. Evaluate for x=9

9) Write an explicit formula and recursive formula to model the number of dots per day.

Day 1 Day 2 Day 3

How many dots will there be on day 7?

10) Taylor is training for a marathon. He decides to begin by running 3 miles and increase by 1.5 miles each day. Write an equation to represent the scenario. How long will it take him to run 26.2 miles?

11) You bought a Boston Whaler in 2004 for $12,500. The boat's value depreciates by 7% a year. How much is the boat worth now? How much is it worth in 2020?

Compound Interest Formula

$A = P\left(1 + \frac{r}{n}\right)^{nt}$

12) The population of a large city increases by a rate of 3% a year. When the 2000 census was taken, the population was 1.2 million.

a) Write a model for this population growth.

Compound Interest Formula

$A = P\left(1 + \frac{r}{n}\right)^{nt}$

b) What should the population be now? What is the projected population for 2020?

13) Which function represents the sequence?

A. 3^{n-1} B. 6^{n-1}

C. $3(6)^{n-1}$ D. $6(3)^{n-1}$

n	1	2	3	4	5	...
a_n	6	18	54	162	486	

14) Which function shows the function $f(x) = 3^x$ being translated 5 units to the left?

A. $f(x) = 3^x - 5$ B. $f(x) = 3^{x+5}$ C. $f(x) = 3^{x-5}$ D. $f(x) = 3^x + 5$

15) The table represents an exponential function. Write the equation that represents the function.

x	0	1	2	3	4
y	3	12	48	192	768

Exponential Equation

$y = ab^x$

16) True or False: An exponential function will always have an x-intercept.

17) True or False: An exponential function will always have a y-intercept.

18) Is the graph of the following function increasing or decreasing? $F(x) = ½^x$

19) The table below describes an exponential function.

x	0	1	2	3
y	64	32	16	8

a) Is the function exponential growth or exponential decay?

b) Write the equation of the function.

Exponential Equation

$y = ab^x$

20) An item is purchased for $4000 and it depreciated in value %10 per year. Write an equation to describe the value of the item in t years.

Compound Interest Formula

$A = P\left(1 + \frac{r}{n}\right)^{nt}$

21) Given the function $y = 3(2)^{x-1} + 4$,

a) Does the function represent growth or decay? _____

b) What is the equation of the asymptote? _____

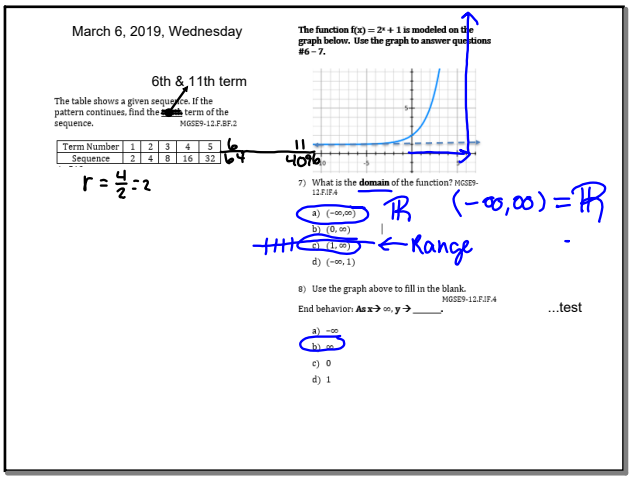
c) Describe the transformations that occur:

22) Given the function $y = 5(\frac{1}{2})^{x+2} - 3$

a) Does the function represent growth or decay? _____

b) What is the equation of the asymptote? _____

c) Describe the transformations that occur:



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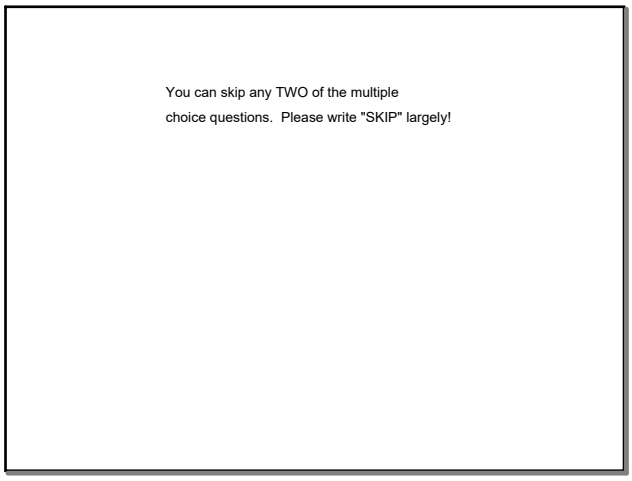

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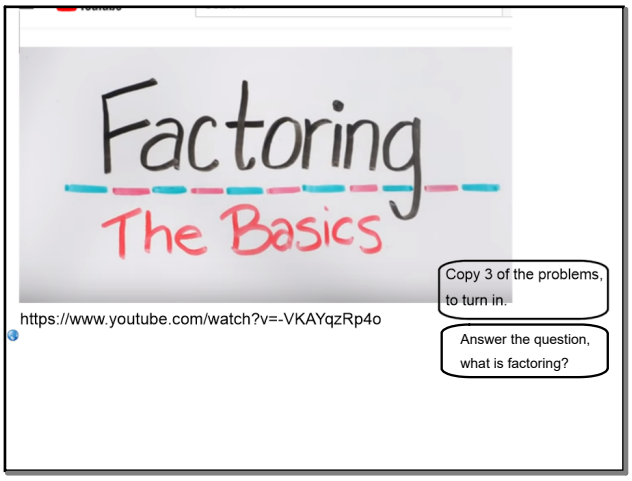

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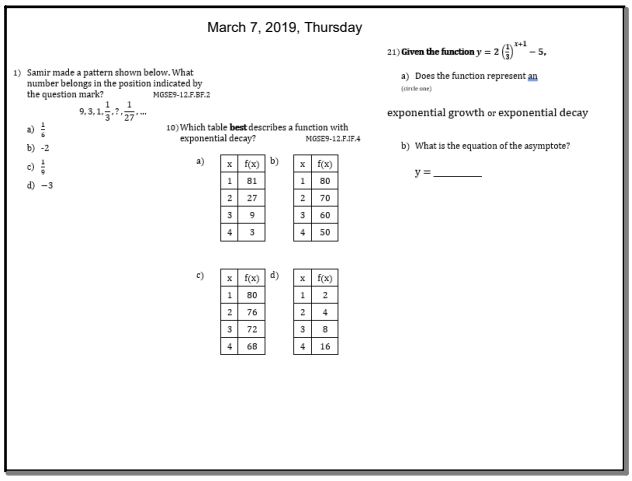

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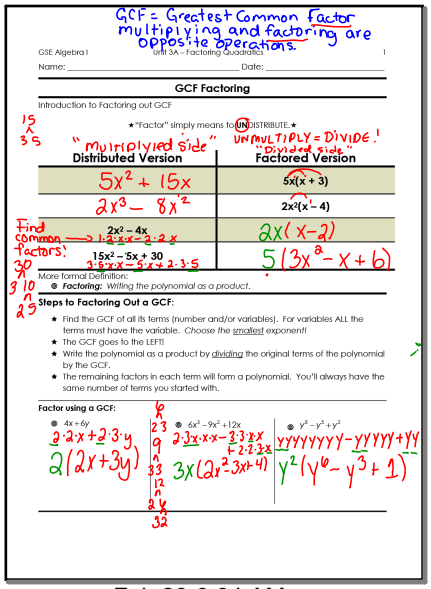

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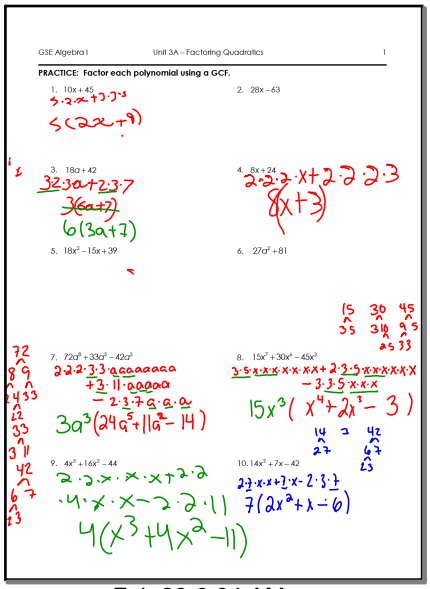

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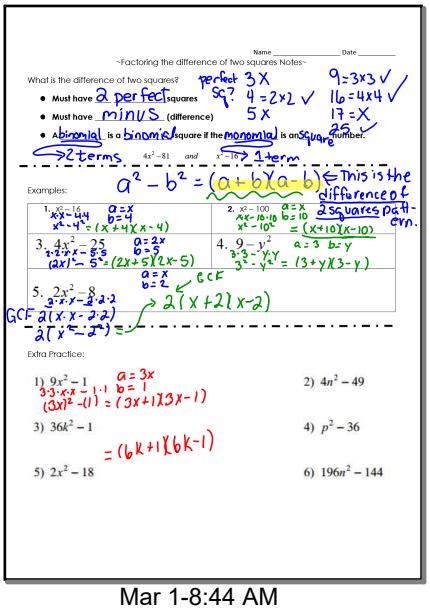

~Factoring the difference of two squares Notes~

What is the difference of two squares?

- Must have 2 perfect squares
- Must have minus (difference)
- A binomial is a square if the monomial is an square number.

2 terms $4x^2-81$ and x^2-16 2 term

$a^2-b^2=(a+b)(a-b)$ ← This is the difference of 2 squares pattern.

Examples:

1. x^2-16 $a=x$ $b=4$ $x^2-4^2=(x+4)(x-4)$
2. x^2-100 $a=x$ $b=10$ $x^2-10^2=(x+10)(x-10)$
3. $4x^2-25$ $a=2x$ $b=5$ $(2x)^2-5^2=(2x+5)(2x-5)$
4. $9-y^2$ $a=3$ $b=y$ $3^2-y^2=(3+y)(3-y)$
5. $2x^2-8$ $a=x$ $b=2$ GCF $2(x^2-4)=2(x+2)(x-2)$

GCF $2(x\cdot x-2\cdot 2)$ $2(x^2-2^2)$

Extra Practice:

1) $9x^2-1$ $a=3x$ $b=1$ $(3x)^2-(1)^2=(3x+1)(3x-1)$

2) $4n^2-49$

3) $36k^2-1$ $=(6k+1)(6k-1)$

4) p^2-36

5) $2x^2-18$

6) $196n^2-144$

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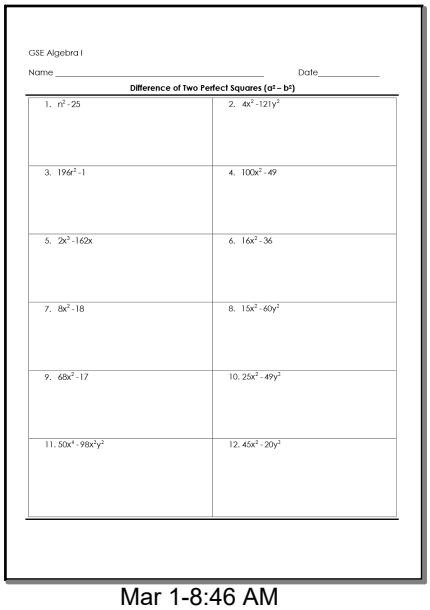

GSE Algebra I

Name _____ Date _____

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

1. n^2-25	2. $4x^2-121y^4$
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. $45x^2-20y^2$

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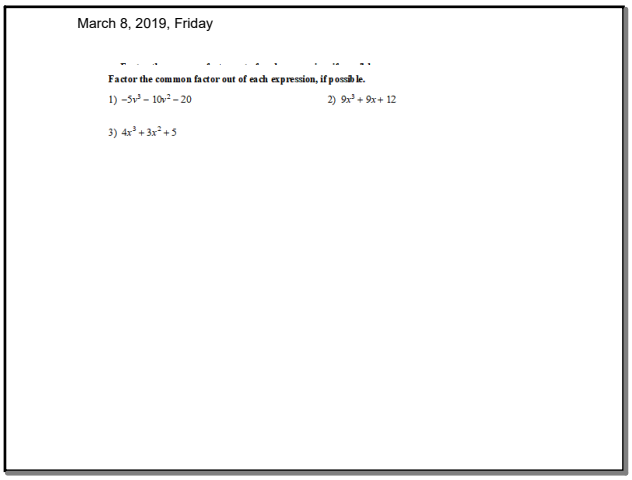

March 8, 2019, Friday

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

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

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

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

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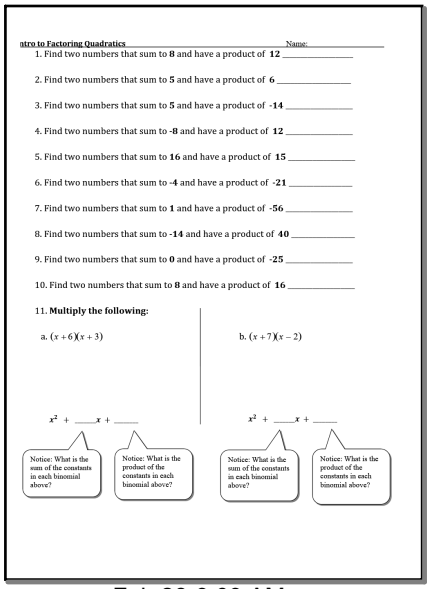

ntro to Factoring Quadratics Name: _____

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

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

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

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

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

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

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

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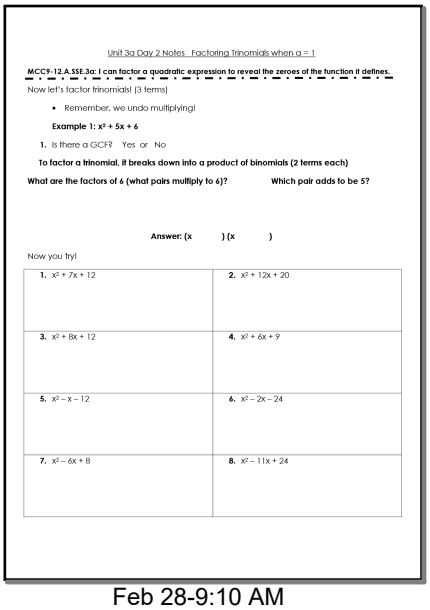

Unit 3a Day 2 Notes Factoring Trinomials when a = 1

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. $x^2-11x+24$

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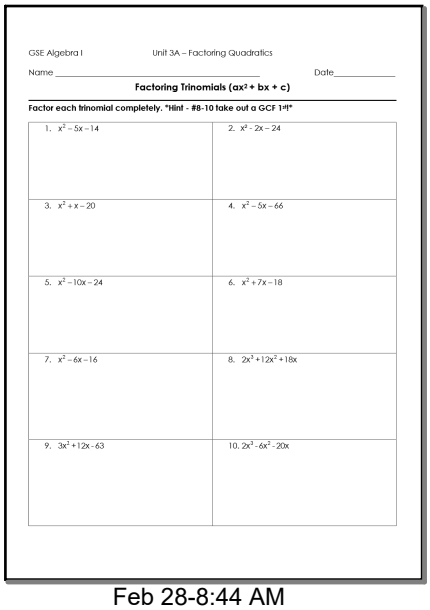

GSE Algebra I Unit 3A – Factoring Quadratics

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. $2x^3-6x^2-20x$

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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			

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Examples

Rate of change			
Domain & Range			
Intercepts			
Asymptotes			
End Behavior			

Functions to Graph and Discuss:

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

Feb 28-8:40 AM

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 $-2 \leq f(x) < \infty$.

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: $y \geq -2$

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