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

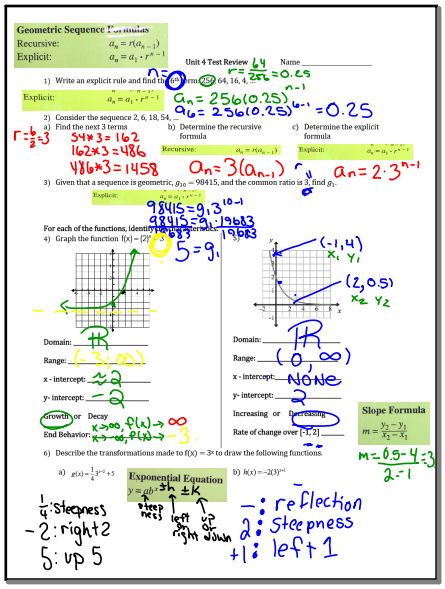
Find the explicit formula.

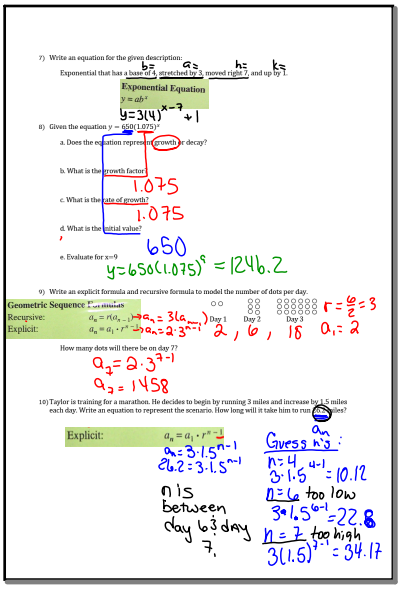
6) −1, −2, −4, −8, ... $r = 2$ $a_n = -1(2)^{n-1}$

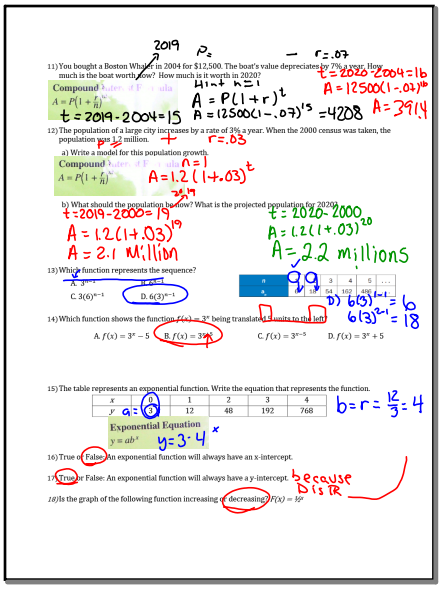
...test

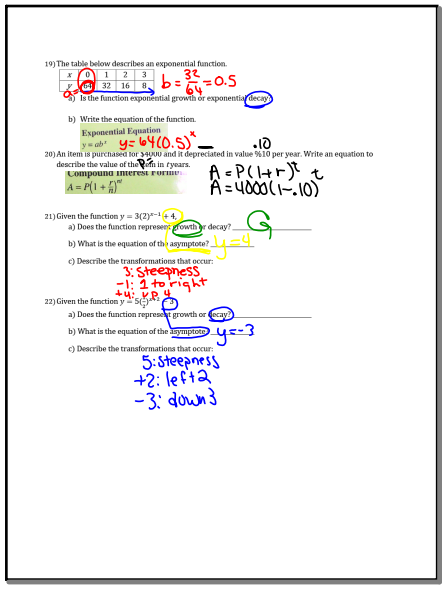
Feb 28-8:11 AM

Feb 28-8:11 AM









March 6, 2019, Wednesday

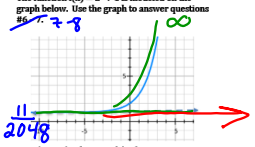
6th & 11th term

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

$r = \frac{4}{2} = 2$

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) $(-\infty, 1)$

Range? $(1, \infty)$

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

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

a) $-\infty$
b) ∞
c) 0
d) 1

...test

Feb 28-8:11 AM

You can skip any TWO of the multiple choice questions. Please write "SKIP" largely!

Mar 6-10:36 AM

YouTube Search

Factoring The Basics

https://www.youtube.com/watch?v=-VKAYqzRp4o

Copy 3 of the problems, to turn in.

Answer the question, what is factoring?

Mar 6-8:28 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) $\frac{1}{6}$
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

GCF - Greatest Common Factor

GSE Algebra I Unit 3A – Factoring Quadratics 1

Name: _____ Date: _____

GCF Factoring

Introduction to Factoring out GCF

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

"multiply" Distributed Version	"dividing" Factored Version
$5x^2 + 15x$	$5x(x+3)$
$2x^3 - 8x^2$	$2x^2(x-4)$
$2x^2 - 4x$	$2x(x-2)$ GCF?
$15x^2 - 5x + 30$	$5(3x^2 - x + 6)$ GCF?

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.

● $4x + 6y$ GCF? $2 \cdot 2 \cdot x + 2 \cdot 3 \cdot y$ $2(2x + 3y)$

● $6x^3 - 9x^2 + 12x$ GCF? $3x(2x^2 - 3x + 4)$

● $y^5 - y^2 + y$ GCF? $y^3(y^5 - y^2 + 1)$

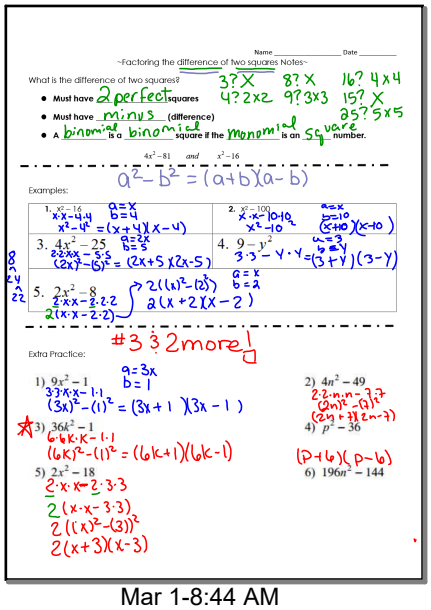
Feb 28-9:04 AM

GSE Algebra I Unit 3A – Factoring Quadratics 1

PRACTICE: Factor each polynomial using a GCF.

1. $10x + 45$ $5(2x+9)$
2. $28x - 63$ $7(4x-9)$
3. $18a + 42$ $6(3a+7)$
4. $8x + 24$ $8(x+3)$
5. $18x^2 - 15x + 39$ $3(6x^2 - 5x + 13)$
6. $27a^2 + 81$ $27(a^2+3)$
7. $72a^3 + 33a^2 - 42a^3$ $3a^3(24a^2 + 11a - 14)$
8. $15x^2 + 30x^4 - 45x^3$ $15x^3(x^4 + 2x^3 - 3)$
9. $4x^2 + 16x^2 - 44$
10. $14x^2 + 7x - 42$ $7(2x^2 + x - 6)$

Feb 28-9:04 AM


Name _____ Date _____

~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 binomial square if the monomial is an square number.

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

$a^2-b^2=(a+b)(a-b)$

Examples:

1. x^2-16 — $x\cdot x-4\cdot 4$, $x^2-4^2=(x+4)(x-4)$
2. x^2-100 — $x\cdot x-10\cdot 10$, $x^2-10^2=(x+10)(x-10)$
3. $4x^2-25$ — $2\cdot 2\cdot x\cdot x-5\cdot 5$, $(2x)^2-(5)^2=(2x+5)(2x-5)$
4. $9-y^2$ — $3\cdot 3-y\cdot y=(3+y)(3-y)$
5. $2x^2-8$ — $2\cdot x\cdot x-2\cdot 2\cdot 2$, $2(x\cdot x-2\cdot 2)$, $2((x)^2-(2)^2)$, $2(x+2)(x-2)$

Extra Practice:

#3 3 2 more!

1) $9x^2-1$ — $3\cdot 3\cdot x\cdot x-1\cdot 1$, $(3x)^2-(1)^2=(3x+1)(3x-1)$

2) $4n^2-49$ — $2\cdot 2\cdot n\cdot n-7\cdot 7$, $(2n)^2-(7)^2$, $(2n+7)(2n-7)$

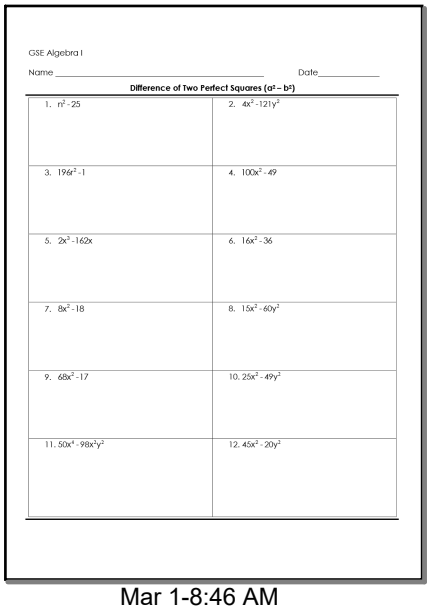
3) $36k^2-1$ — $6\cdot 6\cdot k\cdot k-1\cdot 1$, $(6k)^2-(1)^2=(6k+1)(6k-1)$

4) p^2-36 — $(p+6)(p-6)$

5) $2x^2-18$ — $2\cdot x\cdot x-2\cdot 3\cdot 3$, $2(x\cdot x-3\cdot 3)$, $2((x)^2-(3)^2)$, $2(x+3)(x-3)$

6) $196n^2-144$

Mar 1-8:44 AM

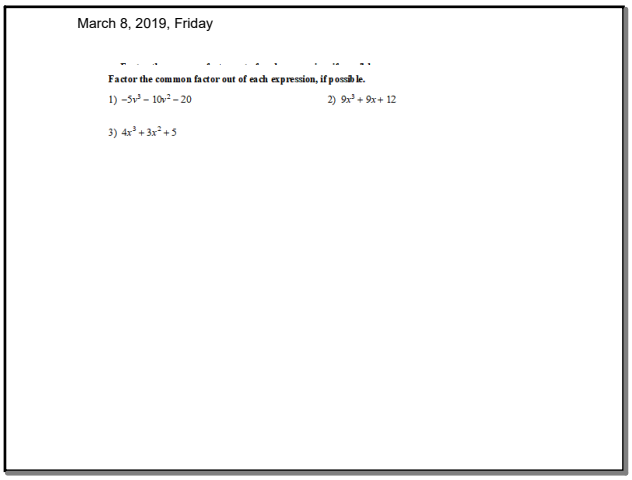

GSE Algebra I

Name _____ Date _____

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

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

Mar 1-8:46 AM


March 8, 2019, Friday

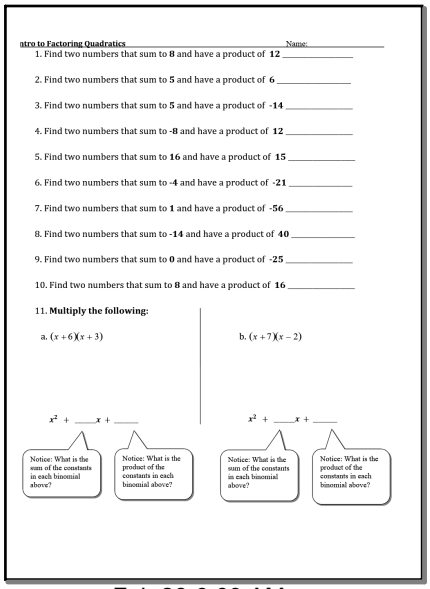
Factor the common factor out of each expression, if possible.

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

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

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

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

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

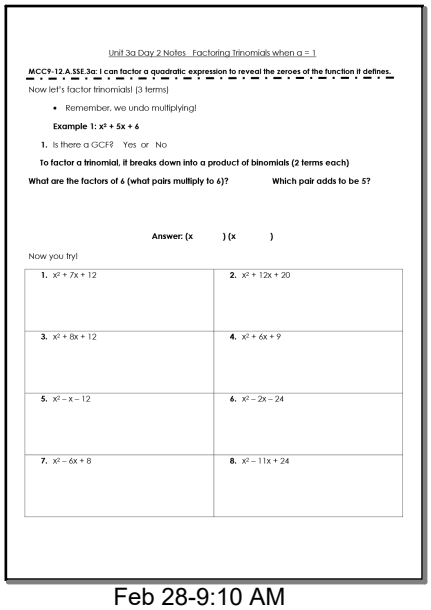
Notice: What is the sum of the constants in each binomial above?

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?

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)

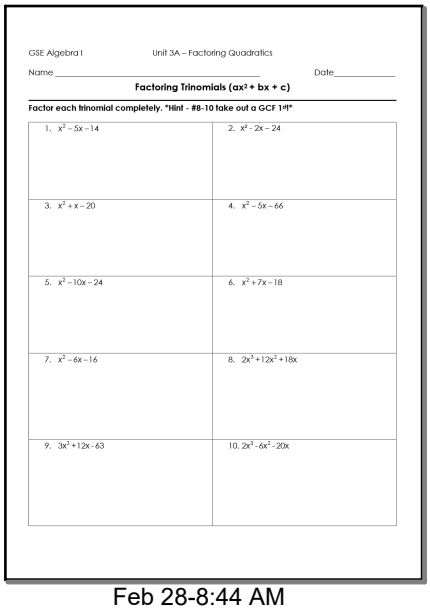
What are the factors of 6 (what pairs multiply to 6)? **Which pair adds to be 5?**

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

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:

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

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