

March 11, 2019, Monday



SAMPLE ITEMS

1. In which expression is the coefficient of the n term -1 ?

A. $3n^2 - 1$
 B. $-n^2 + 5n + 4$
 C. $-2n^2 + 5$ ✓
 D. $4n^2 + n - 5$

2. The expression s^2 is used to calculate the area of a square, where s is the side length of the square. What does the expression $(8s)^2$ represent?

A. the area of a square with a side length of 8
 B. the area of a square with a side length of 16
 C. the area of a square with a side length of $4s$ ✓
 D. the area of a square with a side length of $8s$ ✓

Mar 6-8:21 AM

Intro to Factoring Quadratics

- Find two numbers that sum to 8 and have a product of 12. $2, 6$
- Find two numbers that sum to 5 and have a product of 6. $-2, -7$
- Find two numbers that sum to 5 and have a product of -14 . $-2, -7$
- Find two numbers that sum to -8 and have a product of 12 . $-2, -6$
- Find two numbers that sum to 16 and have a product of 15. $1, 15$
- Find two numbers that sum to -4 and have a product of -21 . $3, -7$
- Find two numbers that sum to 4 and have a product of -56 . $-7, 8$
- Find two numbers that sum to -14 and have a product of 40. $-4, -10$
- Find two numbers that sum to 0 and have a product of -25 . $-5, 5$
- Find two numbers that sum to 8 and have a product of 16. $4, 4$

11. Multiply the following:

a. $(x+6)(x+3)$
 $6+3=9$
 $6 \cdot 3 = 18$
 $x^2 + 3x + 6x + 18$

b. $(x+7)(x-2)$
 $7-2=5$
 $7 \cdot -2 = -14$
 $x^2 + 5x - 14$

Notes: What is the sum of the constants in each binomial above? What is the product of the constants in each binomial above? What is the sum of the constants in each binomial above? 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.5E.3a-1 can factor a quadratic expression to reveal the zeros of the function it defines.

Now let's factor trinomials (3 terms)

Remember, we undo multiplying!

Example 1: $x^2 + 5x + 4$
 $x^2 + 5x + 2 \cdot 2$

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 4 (what pairs multiply to 4)? $1, 4$ Which pair adds to 5? $(2, 3)$

Answer: $(x+2)(x+3)$

Now you try!

1. $x^2 + 7x + 12$ $(x+3)(x+4)$	2. $x^2 + 12x + 20$ $(x+2)(x+10)$
3. $x^2 + 8x + 12$ $(x+2)(x+6)$	4. $x^2 + 6x + 9$ $(x+3)(x+3)$
5. $x^2 - x - 6$ $(x+3)(x-4)$	6. $x^2 - 2x - 24$ $(x-6)(x+4)$
7. $x^2 - 6x + 8$ $(x-2)(x-4)$	8. $x^2 - 11x + 24$ $(x-3)(x-8)$

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GSE Algebra I Unit 3A - Factoring Quadratics

Name _____ Date _____

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

Factor each binomial completely. *Hint - #8-10 take out a GCF!

1. $x^2 - 5x - 14$ $(x-7)(x+2)$	2. $x^2 - 2x - 24$ $(x-4)(x+6)$
3. $x^2 + x - 20$ $(x+6)(x-1)$	4. $x^2 - 5x - 66$ $(x+6)(x-11)$
5. $x^2 - 10x - 24$ $(x-12)(x+2)$	6. $x^2 + 7x - 18$ $(x+9)(x-2)$
7. $x^2 - 6x - 16$ $(x+2)(x-8)$	8. $2x^2 + 12x + 18$ GCF: $2x(x+3)(x+3)$
9. $3x^2 + 12x - 63$ $3(x+3)(x-7)$	10. $2x^2 - 6x^2 - 20x$ $-4x(x+5)(x-1)$

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Algebra I Factoring In-Class Assignment

Factor the common factor out of each expression.

1) $-24x^3 + 30x + 24$
 $6(-4x^2 + 5x + 4)$

2) $-35x + 45$
 $5(-7x + 9)$

3) $70x^3 + 63x^2 - 42x$
 $7x(10x^2 + 9x - 6)$

4) $63x^3 - 28$
 $7(9x^3 - 4)$

Factor each completely.

5) $p^2 - 9p + 14$
 $(p-2)(p-7)$

6) $a^2 - 81$
 $(a-9)(a+9)$

7) $x^2 - 3x - 4$
 $(x+1)(x-4)$

8) $m^2 - 1$
 $(m+1)(m-1)$

9) $n^2 - 8n + 16$
 $(n-4)(n-4)$

10) $r^2 - 2r - 80$
 $(r-8)(r+10)$

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Factor each completely. ALL have a GCF!!

11) $5x^2 + 17x + 6$

12) $2x^2 - 15x + 28$

13) $8x^2 + 30x + 7$

14) $4x^2 - 17x + 4$

15) $3x^2 - 21x + 30$

16) $2x^2 + 18x - 20$

17) $4x^2 - 4$

18) $6x^2 + 30x - 36$

19) $4x^2 - 26x + 36$

20) $20p^2 + 38p + 14$

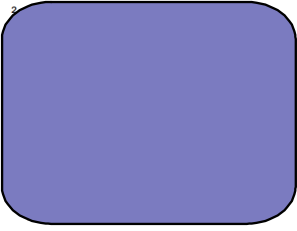
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March 12, 2019, Tuesday

1. What is the product of $7x - 4$ and $8x + 5$?

A. $15x + 1$
 B. $30x + 2$
 C. $56x^2 + 3x - 20$
 D. $56x^2 - 3x + 20$

$(7x - 4)(8x + 5)$
 $56x^2 + 35x - 32x - 20$
 $56x^2 + 3x - 20$



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Factor by GCF:

$48b^2 + 48b^2 = 2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 \cdot b \cdot b + 2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 \cdot b \cdot b$
 $48b^2(b + 8)$

$9m^2 - 27m + 9m^3 = 3 \cdot 3 \cdot m \cdot m - 3 \cdot 3 \cdot 3 \cdot m + 3 \cdot 3 \cdot m \cdot m \cdot m$
 $9m(m - 3 + m^2)$

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

Factor by DOTS (Difference of 2 Squares)

$9 - 4x^2 = a^2 - b^2$
 $(3)^2 - (2x)^2$
 $(3 + 2x)(3 - 2x)$

$4x^2 - 16 = a^2 - b^2$
 $(2x)^2 - (4)^2$
 $(2x + 4)(2x - 4)$

Factor by $a = 1$ (Factors of c that add to b)

$x^2 - 15x + 56 = (x - 7)(x - 8)$

Factor by $a \neq 1$ (Bottoms Up Method)

$2x^2 + 2x - 4 = 2(x^2 + x - 2) = 2(x - 1)(x + 2)$

$20x^2 - 38x + 12 = (2x - 2)(5x - 6)$

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Factor by $a \neq 1$ (Bottoms Up Method)

$x^2 + 27x + 8 = (x + 3)(x + 24)$

$20x^2 - 38x + 12 = 2(10x^2 - 19x + 6) = 2(x - 4)(x - 1.5)$

$3x^2 + 2x + 18 = (3x + 1)(3x + 8)$

$3x^2 + 2x + 18 = (3x + 1)(3x + 8)$

$3x^2 + 2x + 18 = (3x + 1)(3x + 8)$

$3x^2 + 2x + 18 = (3x + 1)(3x + 8)$

$3x^2 + 2x + 18 = (3x + 1)(3x + 8)$

Mar 12-10:33 AM

March 13, 2019, Wednesday

1. Which expression is equivalent to $121x^2 - 64y^2$?

A. $(11x - 16y)(11x + 16y)$
 B. $(11x - 16y)(11x - 16y)$
 C. $(11x + 8y)(11x + 8y)$
 D. $(11x + 8y)(11x - 8y)$

$(11x)^2 - (8y)^2 = a^2 - b^2 = (a+b)(a-b)$
 $a = 11x$
 $b = 8y$

Answers to Unit 1: D 2. C

2. What is a common factor for the expression $24x^2 + 16x + 144$?

A. 16
 B. $8x$
 C. $3x^2 + 2x + 18$
 D. $8(x - 2)(3x + 9)$

GCF = 8

3. Which of these shows the complete factorization of $3x^2y^2 - 3xy - 14$?

A. $3(2xy^2 - 7)(xy^2 + 2)$
 B. $(3xy + 6)(2xy - 7)$
 C. $3(2xy - 7)(xy + 2)$
 D. $(3xy^2 + 6)(2xy^2 - 7)$

Quiz 1-2 Find the GCF
 3-6 pick 3 only
 7-10 pick 3

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March 14, 2019, Thursday

◆ Consider the expression $3n^2 + n + 2$.

a. What is the coefficient of n ?

◆ Factor the expression $12x^2 + 14x - 6$.

◆ Factor the expression $16a^2 - 81$.

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Algebra 1: Unit 3A Study Guide

Name: _____

Factor out the Greatest Common Factor	Factor out the Greatest Common Factor	Factor out the Greatest Common Factor
5. $2x - 6$	2. $15x - 3y$	3. $xy - 7xy + x^2y$
Factor trinomials when $a = 1$	Factor trinomials when $a = 1$	Factor trinomials when $a = 1$
4. $x^2 - 14x - 15$	5. $x^2 - 12x + 36$	6. $y^2 + 8y + 7$
Factor out the difference of squares	Factor out the difference of squares	Factor out the difference of squares
7. $a^2 - 11a + 10$	8. $m^2 + m - 90$	9. $a^2 + 4a - 12$
Factor out the trinomials when a is greater than 1	Factor out the trinomials when a is greater than 1	Factor out the trinomials when a is greater than 1
10. $3x^2 - 75$	11. $A^2 - 81$	12. $2a^2 - 50$
13. $2a^2 - 5a - 3$	14. $3x^2 + 5x - 12$	15. $2a^2 + x - 15$
16. $5a^2 + 7x + 2$	17. $9x^2 - 6x + 1$	18. $2a^2 + 6x + 3$

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