

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 $8s$ ✓

$s = 8x$

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Intro to Factoring Quadratics

1. Find two numbers that sum to 8 and have a product of 12. $2, 6$

2. Find two numbers that sum to 5 and have a product of 6. $-2, 7$

3. Find two numbers that sum to 5 and have a product of -14 . $-2, 7$

4. Find two numbers that sum to -8 and have a product of 12 . $-2, -6$

5. Find two numbers that sum to 16 and have a product of 15. $1, 15$

6. Find two numbers that sum to -4 and have a product of -21 . $3, -7$

7. Find two numbers that sum to 1 and have a product of -56 . $-7, 8$

8. Find two numbers that sum to -14 and have a product of 40. $-4, -10$

9. Find two numbers that sum to 0 and have a product of -25 . $-5, 5$

10. Find two numbers that sum to 8 and have a product of 16. $4, 4$

11. Multiply the following:

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

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

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: $x^2 + 5x + 6$
 $x^2 + 5x + 2 \cdot 3$

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)? $1 \cdot 6, 2 \cdot 3$ 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. $2x^2 - 6x^2 - 20x$ $-4x^2 - 20x$

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

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

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

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

Factor each completely. ALL have a GCF!!

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

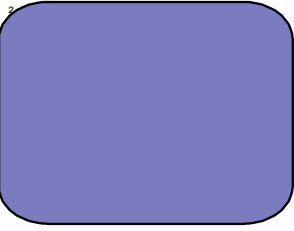
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March 12, 2019, Tuesday

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:

$6a^2 + 48b^2 = 2 \cdot 3 \cdot 3 \cdot b \cdot b + 2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 \cdot b \cdot b$
 $6b^2(9a + 8)$

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

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

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)

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

$20x^2 - 38x + 12 = (2x - 2)(5x - 6) = 2(x - 1)(5x - 6)$

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

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

$20x^2 - 38x + 12 = 2(10x^2 - 19x + 6) = 2(x - 4)(x - 1.5) = 2(x - 4)(x - \frac{3}{2}) = 2(2x - 4)(x - \frac{3}{2}) = 2(2x - 4)(x - 3) = 2(5x - 2)(2x - 3)$

$3x^2 + 24 = 3(x^2 + 8) = 3(x + 2)(x + 4)$

$19x^2 - 15 = (19x + 1)(x - 15)$

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. $(11x + 8y)(11x - 8y)$


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

A. 15
 B. 8x
 C. $3x^2 + 2x + 18$
 D. $8(x - 2)(3x^2 + 9)$

3. Which of these shows the complete factorization of $6x^2y^2 - 9xy - 42$?

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



Mar 6-8:44 AM

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

5. $2x - 6$ 2. $15x - 3y$ 3. $xy - 7xy + xy^2$

Factor trinomials when $a = 1$

4. $x^2 - 14x - 15$ 5. $x^2 - 12x + 36$ 6. $y^2 + 8y + 7$

7. $x^2 - 11x + 10$ 8. $m^2 + m - 90$ 9. $n^2 + 4n - 12$

Factor out the difference of squares.

10. $3x^2 - 75$ 11. $A^2 - 81$ 12. $2d^2 - 50$

Factor out the trinomials when a is greater than 1.

13. $2x^2 - 5x - 3$ 14. $3x^2 + 5x - 12$ 15. $2x^2 + x - 15$

16. $5x^2 + 7x + 2$ 17. $9x^2 - 6x + 1$ 18. $2x^2 + 6x + 3$

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19. Which of the following correctly factors out the greatest common factor of $5x^2 + 20x$?	20. What is the correct factorization of $x^2 - 2x - 24$?	21. Which value of b would make $x^2 + bx - 20$ factorable?
a) $5(x^2 + 4)$ b) $5x(x^2 + 4)$ c) $5(x^2 + 4x)$ d) $5x(x^2 + 4x)$	a) $(x - 4)(x - 6)$ b) $(x - 2)(x + 12)$ c) $(x + 4)(x - 6)$ d) $(x - 4)(x + 6)$	a) 8 b) 4 c) 10 d) 2
22. The area of a rectangle is $3x^2 - 10x + 7$. The width is $3x - 7$. What is the length of the rectangle?	23. Determine whether $x^2 - 36$ is a difference of two squares. If so, choose the correct factorization.	24. When multiplied, which of the following gives you $x^2 + 2x - 3$?
a) $(x + 1)$ b) $(x - 7)$ c) $(x + 3)$ d) $(x - 1)$	a) No b) Yes: $(x - 6)^2$ c) Yes: $(x - 6)(x + 6)$ d) Yes: $(x + 6)^2$	a) $(x + 3)(x - 1)$ b) $(x - 3)(x + 1)$ c) $(x + 3)(x + 1)$ d) $(x - 3)(x - 1)$
25. Which expression is a factor of $2x^2 - x - 1$?	26. What type of equations do we factor?	27. Write an example of an expression that would be factored using both GCF and difference of perfect squares .
a) $2x - 1$ b) $2x + 1$ c) $x + 2$ d) $x - 2$		

Factor each expression completely.

1. $2x^2 + 49$	2. $x^2 - 11x$	3. $3x^2 + 21x$
4. $4x^2 - 36$	5. $x^2 - 100$	6. $9x^2 - 4$

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7. $x^2 - 121$	8. $4x^2 - 1$	9. $49x^2 - 25$
10. $25x^2 - 9$	11. $2x^2 - 8$	12. $2x^2 - 98$
13. $x^2 + 5x + 4$	14. $x^2 - 21x - 22$	15. $x^2 + 13x + 40$
16. $x^2 + 34x - 72$	17. $x^2 + 10x - 11$	18. $x^2 - 14x + 24$
19. $x^2 + 8x + 12$	20. $x^2 + 5x - 24$	21. $x^2 + 7x - 30$
22. $x^2 - 3x - 54$	23. $x^2 - x - 72$	24. $x^2 + 17x + 16$
25. $x^2 + 6x - 40$	26. $x^2 + 21x + 98$	27. $x^2 + 20x + 84$
28. $x^2 + 2x - 63$	29. $x^2 + 18x + 77$	30. $x^2 - 2x - 35$
31. $5x^2 + 4x - 12$	32. $2x^2 - 5x - 7$	33. $2x^2 + 13x + 15$
34. $3x^2 - 7x - 6$	35. $3x^2 + 16x + 21$	36. $4x^2 - 4x - 15$
37. $4x^2 + 12x + 9$	38. $2x^2 - 9x + 4$	39. $10x^2 - 17x + 3$
40. $2x^2 - 5x - 3$	41. $4x^2 - 5x - 6$	42. $2x^2 - 10x - 28$

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March 15, 2019, Friday

Factor completely, if possible...

$2x^2 + 4x - 30 =$

$x^4 + 5x^2 + 4 =$

$x^4 - y^4 =$

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Factor the common factor out of each expression. Circle your final answer.

1) $20x^5 + 8x^2$ 2) $40n^2 + 40n + 56$

Factor each completely.

3) $25p^2 - 4$ 4) $a^2 - 3a - 28$

5) $n^2 - 3n - 4$ 6) $r^2 - 1$

7) $3n^2 + 19n - 40$ 8) $9x^2 - 38x + 8$

9) $5a^2 + 6a - 8$ 10) $9n^2 - 46n + 5$

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19. Which of the following correctly factors out the greatest common factor of $5x^2 + 20x$?	20. What is the correct factorization of $x^2 - 2x - 24$?	21. Which value of b would make $x^2 + bx - 20$ factorable?
a) $5(x^2 + 4)$ b) $5x(x^2 + 4)$ c) $5(x^2 + 4x)$ d) $5x(x^2 + 4x)$	a) $(x - 4)(x - 6)$ b) $(x - 2)(x + 12)$ c) $(x + 4)(x - 6)$ d) $(x - 4)(x + 6)$	a) 8 b) 4 c) 10 d) 2
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a) $2x - 1$ b) $2x + 1$ c) $x + 2$ d) $x - 2$		

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