

March 11, 2019, Monday

SAMPLE ITEMS

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

- A. $3n^2 + 4n - 1$
- B. $-n^2 + 5n + 4$
- C. $-2n^2 + n + 5$
- 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 $(8x)^2$ 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 $4x$
- D. the area of a square with a side length of $8x$

$(8x)^2 = 64x^2$

Answers to Unit 1.3 Sample Items
1. C 2. D

Mar 6-8:21 AM

Intro to Factoring Quadratics

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 -4 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. $(x+2)(x+3)$

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

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.1.1.3.3.a I can factor a quadratic expression to reveal the zeros of the function it defines.

Now let's factor binomials (3 terms)

Remember: Undo multiplying

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

1. Is there a GCF? Yes or No?

To factor a binomial, 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: $(x+2)(x+3)$

Now you try!

1. $x^2 + 7x + 12$ $(x+3)(x+4)$	2. $x^2 + 12x + 20$ $(x+2)(x+10)$
3. $x^2 + 8x + 15$ $(x+3)(x+5)$	4. $x^2 + 5x + 3$ $(x+2)(x+3)$
5. $x^2 + 3x - 4$ $(x+4)(x-1)$	6. $x^2 - 2x - 24$ $(x-6)(x+4)$
7. $x^2 + 4x - 4$ $(x-2)(x+2)$	8. $x^2 - 8x + 3$ $(x-9)(x-3)$

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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 first!

1. $x^2 - 5x - 14$ $(x+2)(x-7)$	2. $x^2 - 2x - 24$
3. $x^2 + x - 20$ $(x-4)(x+5)$	4. $x^2 - 5x - 66$
5. $x^2 - 10x - 24$	6. $x^2 + 7x - 18$
7. $x^2 - 6x - 16$	8. $2x^2 + 12x + 18$ $2x(x^2 + 6x + 9)$ $2x(x+3)(x+3)$
9. $3x^2 + 12x - 45$ $3(x^2 + 4x - 15)$ $3(x+7)(x-3)$	10. $-6x^2 - 20x$ $-2x(3x^2 + 10x)$ $-2x(3x+10)$

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Algebra I Name _____ ID: 1

Factoring In-Class Assignment

Factor the common factor out of each expression.

1) $-24x^2 + 30x + 24$	2) $-35x^2 + 45$
3) $70x^3 + 63x^2 - 42x$	4) $63x^3 - 28$

Factor each completely.

5) $p^2 - 9p + 14$	6) $a^2 - 81$
7) $x^2 - 3x - 4$	8) $w^2 - 1$
9) $x^2 - 8x + 16$	10) $r^2 + 2r - 80$

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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) $3a^2 - 21a + 30$	16) $2x^2 + 18x - 20$
17) $4a^2 - 4$	18) $6x^2 + 30x - 36$
19) $4b^2 - 26b + 36$	20) $20p^2 + 35p + 14$

Mar 6-8:40 AM

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. $56x^2 - 3x + 20$

1. C 2. C

2. A model of a house is shown.

What is the perimeter, in units, of the model?

A. $32x + 12$
 B. $46x + 25$
 C. $50x + 11$
 D. $64x + 24$

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<p>Factor by GCF:</p> <p>$54b^3 + 48b^2 =$</p> <p>$9m^2 - 27m + 9m^3 =$</p>	<p>Factor by DOTS (Difference of 2 Squares)</p> <p>$9 - 4x^2 =$</p> <p>$4x^2 - 16 =$</p>
<p>Factor by a = 1 (Factors of c that add to b)</p> <p>$x^2 - 15x + 56 =$</p> <p>$2x^2 + 2x - 4 =$</p>	<p>Factor by a ≠ 1 (Bottoms Up Method)</p> <p>$9x^2 + 27x + 8 =$</p> <p>$20x^2 - 38x + 12 =$</p>

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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. 18
 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. $(3xy^2 + 6)(2xy^2 - 7)$

Answers to Unit 3.1 Sample Items
 1. D 2. C 3. C

...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		
1. $2x - 6$	2. $15x - 3y$	3. $xy - 7xy + x^2y$
Factor trinomials when $a = 1$		
4. $x^2 - 14x - 15$	5. $x^2 - 12x + 36$	6. $b^2 + 8b + 7$
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.		
10. $3x^2 - 75$	11. $A^2 - 81$	12. $2d^2 - 50$
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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<p>19. Which of the following correctly factors out the greatest common factor of $5x^4 + 20x^3$?</p> <p>a) $5(x^4 + 4)$ b) $5x^3(x + 4)$ c) $5(x^2 + 4x)$ d) $5x^3(x^2 + 4x)$</p>	<p>20. What is the correct factorization of $x^2 - 2x - 24$?</p> <p>a) $(x - 4)(x - 6)$ b) $(x - 2)(x + 12)$ c) $(x + 4)(x - 6)$ d) $(x - 4)(x + 6)$</p>	<p>21. Which value of b would make $x^2 + bx - 20$ factorable?</p> <p>a) 8 b) 4 c) 10 d) 2</p>
<p>22. The area of a rectangle is $3x^2 - 10x + 7$. The width is $3x - 7$. What is the length of the rectangle?</p> <p>a) $(x + 1)$ b) $(x - 7)$ c) $(x + 3)$ d) $(x - 1)$</p>	<p>23. Determine whether $x^2 - 36$ is a difference of two squares. If so, choose the correct factorization.</p> <p>a) No b) Yes; $(x - 6)^2$ c) Yes; $(x - 6)(x + 6)$ d) Yes; $(x + 6)^2$</p>	<p>24. When multiplied, which of the following gives you $x^2 + 2x - 3$?</p> <p>a) $(x + 3)(x - 1)$ b) $(x - 3)(x + 1)$ c) $(x + 3)(x + 1)$ d) $(x - 3)(x - 1)$</p>
<p>25. Which expression is a factor of $2x^3 - x^2 - 17$?</p> <p>a) $2x - 1$ b) $2x + 1$ c) $x + 2$ d) $x - 2$</p>	<p>26. What type of equations do we factor?</p>	<p>27. Write an example of an expression that would be factored using both GCF and difference of perfect squares.</p>
Factor each expression completely.		
1. $7x^2 + 49$	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. $2x^2 - 18x - 28$

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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) $9n^2 - 46n + 5$

Mar 6-9:24 AM

<p>19. Which of the following correctly factors out the greatest common factor of $5x^3 + 20x^2$?</p> <p>a) $5(x^2 + 4)$ b) $5x(x^2 + 4)$ c) $5(x^2 + 4x)$ d) $5x(x^2 + 4x)$</p>	<p>20. What is the correct factorization of $x^2 - 2x - 24$?</p> <p>a) $(x - 4)(x - 6)$ b) $(x - 2)(x + 12)$ c) $(x + 4)(x - 6)$ d) $(x - 4)(x + 6)$</p>	<p>21. Which value of b would make $x^2 + bx - 20$ factorable?</p> <p>a) 8 b) 4 c) 10 d) 2</p>
<p>22. The area of a rectangle is $3x^2 - 10x + 7$. The width is $3x - 7$. What is the length of the rectangle?</p> <p>a) $(x + 1)$ b) $(x - 7)$ c) $(x + 3)$ d) $(x - 1)$</p>	<p>23. Determine whether $x^2 - 36$ is a difference of two squares. If so, choose the correct factorization.</p> <p>a) No b) Yes: $(x - 6)^2$ c) Yes: $(x - 6)(x + 6)$ d) Yes: $(x + 6)^2$</p>	<p>24. When multiplied, which of the following gives you $x^2 + 2x - 3$?</p> <p>a) $(x + 2)(x - 1)$ b) $(x - 2)(x + 1)$ c) $(x + 3)(x + 1)$ d) $(x - 3)(x - 1)$</p>
<p>25. Which expression is a factor of $2x^2 - x - 17$?</p> <p>a) $2x - 1$ b) $2x + 1$ c) $x + 2$ d) $x - 2$</p>	<p>26. What type of equations do we factor?</p>	<p>27. Write an example of an expression that would be factored using both GCF and difference of perfect squares.</p>

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