Factoring Completely

Essential Question How do I factor polynomials completely?

Look for GCF!!

1. $-2x^3 + 4x^2 + 70x =$ ______ $x^2 - 2x - 35$

$a=1$ $b=-2$ $c=-35$

-35: $5 + -7 = -2$; $-5 \mid 7$

$-2x(x^2 - 2x - 35)$

can't leave negative in front!

$(-2x)(x-7)(x+5)$

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2. $6x^2y + 39xy + 60y$ $= 3y(x+4)(2x+5)$

$3y(2x^2+13x+20)$

$2(20) = 40$

2	$20 = 22$
4	$10 = 14$
5	$8 = 13$

↑ factors of 40 ADD to 13

	x	$+4$
$2x$	$2x^2$	$+8x$
$+5$	$+5x$	$+20$

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3. $200x^3 - 32x = 8x(5x-2)(5x+2)$

$8 \cdot 25 \cdot x \cdot x \cdot x$

$2 \cdot 16 = 2 \cdot 4 \cdot 8 \cdot x$

$8x(25x^2 - 4)$

$25x^2 + 0x - 4$

$a = 25$ $b = 0$ $c = -4$

$25(-4) = -100$

-2	50
2	-50
10	-10 = 0

	5x	-2
5x	$25x^2$	$-10x$
+2	$10x$	-4

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4. $x^2 + 5x + 7$

no GCF

PRIME

7

1 + 7 = 8

x^2	x
x	$+7$

Factoring Completely

Essential Question How do I factor polynomials completely?

Pause here and try these!

5. $3x^2 + 3x - 18 =$ $3(x+3)(x-2)$

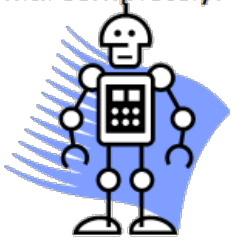
6. $12x^2 - 33x - 9 =$ $3(4x+1)(x-3)$

7. $16x^2 - 100 =$ $4(2x-5)(2x+5)$

8. $48 - 27x^2 =$ $-3(3x-4)(3x+4)$

9. The path of a jumping robot can be modeled by the polynomial $30x - 10x^2$. Factor the polynomial completely.

$10x(3-x)$



Algebra I - Unit 8: Topic 1 – Factoring Day 2 #1-10

Practice – Factoring Day 2 **pp 540-571**

Name _____ Date _____ Period _____

Factor each of the following polynomials completely, if possible.

1. $36a^3 - 4a =$ _____

2. $n^2 - 11n + 24 =$ _____

3. $4r^3 + 8r^2 - 12r =$ _____

4. $-2a^2 + 8a + 42 =$ _____

5. $8x^2 + 8x + 2 =$ _____

6. $x^2 - 3x + 8 =$ _____

7. What is the complete factorization of $20 - 245x^2$?
   A. $(x+70)(x-70)$
   B. $-5(2x+7)(2x-7)$
   C. $-5(7x+2)(7x-2)$
   D. $(7x+2)(7x-2)$

8. Which of the following products represents the trinomial $3x^2 + 9x - 30$?
   A. $(x+5)(x-2)$
   B. $3(x+5)(x-2)$
   C. $3(x+2)(x-5)$
   D. $3(x+10)(x-1)$

9. The area of a rectangle is represented by the trinomial $x^2 + 9x + 14$.
   A. Factor this trinomial to find the dimensions.

   B. If $x = 5$ cm, find the actual dimensions of the rectangle.

10. An arch frames the entrance into a garden. The shape of the arch is modeled by $12x - 3x^2$. Factor this polynomial completely.