CCGPS Analytic Geometry **Factoring** Review Fri Sept 4, 2015

Factor each polynomial and solve

1. $x^2 - 16x + 15$

2. $14x^3 - 2x$

3. $2x^2 - x - 28$

4. $6x^3 + 15x^2 - 9x$

5. $2x^2 + 16x - 40$

6. $9x^2 - 4$

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Factor each polynomial and solve

1. $x^2 - 16x + 15$

$-1 \times -15 = 15$
$-1 + -15 = -16$

$x^2 - 1x - 15x + 15$
$-15 \quad -15$
$x(x-1) - 15(x-1)$
$(x-1)(x-15)$

2. $14x^3 - 2x$

$2x \quad 2x$
$2x(7x^2 - 1)$

3. $2x^2 - x - 28$

$7 \times -8 = -56$
$7 + -8 = -1$

$2x^2 + 7x - 8x - 28$
$-4 \quad -4$
$x(2x+7) - 4(2x+7)$
$(2x+7)(x-4)$

4. $6x^3 + 15x^2 - 9x$

$3x \quad 3x \quad 3x$
$3x(2x^2 + 5x - 3)$

$-1 \times 6 = -6$
$-1 + 6 = 5$

$2x^2 - 1x + 6x - 3$
$x \quad x \quad 3 \quad 3$
$x(2x-1) + 3(2x-1)$
$3x(2x-1)(x+3)$

5. $2x^2 + 16x - 40$

$2 \quad 2 \quad 2$

$-2 \times 10 = -20$
$-2 + 10 = 8$

$2(x^2 + 8x - 20)$
$x^2 - 2x + 10x - 20$
$10 \quad 10$
$x(x-2) + 10(x-2)$
$2(x-2)(x+10)$

6. $9x^2 - 4$

$9x^2 + 0x - 4$

$6 \times -6 = -36$
$6 + -6 = 0$

$9x^2 + 6x - 6x - 4$
$3x \quad 3x \quad -2 \quad -2$
$3x(3x+2) - 2(3x+2)$
$(3x+2)(3x-2)$

1, 56
2, 28
7, 8

1, 20
2, 10
4, 5

1, 6
2, 3

7. $2x^2 - 98$

$2(x^2 - 49)$

$7 \times -7 = -49$

$7 + -7 = 0$

$x^2 + 0x - 49$

$x^2 + 7x - 7x - 49$

$x(x+7) - 7(x+7)$

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

8. $3x^2y - 6xy - 45y$

$3y(x^2 - 2x - 15)$

$3 \times -5 = -15$

$3 + -5 = -2$

$x^2 + 3x - 5x - 15$

$x(x+3) - 5(x+3)$

$3y(x+3)(x-5)$

9. $2x^2 + 8x - 42$

$2(x^2 + 4x - 21)$

$7 \times -3 = -21$

$7 + -3 = 4$

$x^2 + 7x - 3x - 21$

$x(x+7) - 3(x+7)$

$2(x+7)(x-3)$

10. $6bx^2 + 7bx + 2b$

$b(6x^2 + 7x + 2)$

$3 \times 4 = 12$

$3 + 4 = 7$

$6x^2 + 3x + 4x + 2$

$3x(2x+1) + 2(2x+1)$

$b(2x+1)(3x+2)$

11. $4x^2 + 6x - 4$

$2(2x^2 + 3x - 2)$

$4 \times -1 = -4$

$4 + -1 = 3$

$2x^2 + 4x - 1x - 2$

$2x(x+2) - 1(x+2)$

$2(x+2)(2x-1)$

12. $12x^2 - 2x - 30$

$2(6x^2 - x - 15)$

$-10 \times 9 = -90$

$-10 + 9 = -1$

$6x^2 - 10x + 9x - 15$

$2x(3x-5) + 3(3x-5)$

$2(3x-5)(2x+3)$