Factor each polynomial and solve. Under the factors and circle the solutions.
Remember to find the GCF First!!!

Factor each polynomial and solve

1. $x^2 - 16x + 15 = 0$

Factored Form: _____

Solutions: _____

2. $14x^2 = 2$

Factored Form: _____

Solutions: _____

3. $2x^2 - x - 28 = 0$

Factored Form: _____

Solutions: _____

4. $6x^3 + 15x^2 - 9x = 0$

Factored Form: _____

Solutions: _____

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

Factored Form: _____

Solutions: _____

6. $9x^2 = 5$

Factored Form: _____

Solutions: _____

7. $2x^2 - 98 = 0$

Factored Form: _____

Solutions: _____

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

Factored Form: _____

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

Factored Form: _____

Solutions: _____

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

Factored Form: _____

11. $4x^2 + 6x - 4 = 0$

Factored Form: _____

Solutions: _____

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

Factored Form: _____

Solutions: _____

CCGPS Analytic Geometry **Factoring Quiz Review** Key **Sept 8, 2015 (Tues)**

Factor each polynomial and solve. Under the factors and circle the solutions.
Remember to find the GCF First!!!

Factor each polynomial and solve

1. $x^2 - 16x + 15 = 0$

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

$x^2 - 1x - 15x + 15$
$x(x-1) - 15(x-1)$
$(x-15)(x-1) = 0$
$x-15=0$ | $x-1=0$
$x=15$ | $x=1$

Factored Form: $(x-15)(x-1)$

Solutions: $x=1,\ x=15$

2. $14x^2 = 2$

$14x^2 - 2 = 0$
$2(7x^2-1)=0$
2

$7x^2 = 1$
$x^2 = \frac{1}{7}$
$x = \frac{1}{\sqrt{7}} = \pm\frac{\sqrt{7}}{7}$

Factored Form: $2(7x^2-1)$

Solutions: $\pm\sqrt{7}/7$

3. $2x^2 - x - 28 = 0$

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

$2x^2 - 8x + 7x - 28 = 0$
$2x(x-4) + 7(x-4)$
$(x-4)(2x+7) = 0$
$x-4=0$ | $2x+7=0$
$x=4$ | $2x=-7$
$x=-7/2$

Factored Form: $(x-4)(2x+7)$

Solutions:

4. $6x^3 + 15x^2 - 9x = 0$

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

$3x(2x^2+5x-3)=0$
$2x^2+6x-1x-3$
$2x(x+3) - 1(x+3)$
$3x(2x-1)(x+3) = 0$
$3x=0$ | $2x-1=0$ | $x+3=0$
$x=0$ | $x=1/2$ | $x=-3$

Factored Form: $3x(2x-1)(x+3)$

Solutions: $x=0,\ x=1/2,\ x=-3$

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

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

$2x^2+16x-40=0$
$2(x^2+8x-20)=0$ | $2(x-10)(x+2)$
$x^2-10x+2x-20$
$x(x-10)+2(x-10)$

Factored Form: $2(x-10)(x+2)$

Solutions: $x=10,\ x=-2$

6. $9x^2 = 5$

$9x^2 = 5$
$9x^2 - 5 = 0$
$x^2 = 5/9$

$\sqrt{x^2} = \pm\sqrt{5/9}$
$x = \pm\frac{\sqrt{5}}{3}$

Factored Form: $9x^2 - 5$

Solutions: $x = \pm\sqrt{5}/3$

7. $2x^2 - 98 = 0$

$7 \times -7 = -49$
$7 + -7 = 0$

$2(x^2 - 49) = 0$

$x^2 + 0x - 49$

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

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

$(x+7)(x-7) = 0$

Factored Form: $(x+7)(x-7)$

Solutions: $x = 7, x = -7$

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

$-5 \times 3 = -15$
$-5 + 3 = -2$

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

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

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

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

Factored Form: $3y(x-5)(x+3)$

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

$2x^2 + 8x - 42 = 0$

$7 \times -3 = -21$
$7 + -3 = 4$

$2(x^2 + 4x - 21) = 0$

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

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

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

Factored Form: $2(x+7)(x-3)$

Solutions: $x = -7, x = 3$

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

$4 \times 3 = 12$
$4 + 3 = 7$

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

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

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

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

Factored Form: $(3x+2)(2x+1)$

11. $4x^2 + 6x - 4 = 0$

$4 \times -1 = -4$
$4 + -1 = 3$

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

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

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

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

$x+2=0$ | $2x-1=0$

$x = -2$ | $x = 1/2$

Factored Form: $2(x+2)(2x-1)$

Solutions: $x = -2, x = 1/2$

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

$-10 \times 9 = -90$
$-10 + 9 = -1$

$12x^2 - 2x - 30$

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

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

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

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

$3x-5=0$ | $2x+3=0$

$x = 5/3$ | $x = -3/2$

Factored Form: $2(3x-5)(2x+3)$

Solutions: $x = 5/3, x = -3/2$