Algebra 2 Bellwork Tuesday, December 3, 2013

Find ALL solutions by factoring

1. $6x^5 - 18x^3 - 108x = 0$

$6x(x^4 - 3x^2 - 18)$

$-6 \cdot 3 = -18$, $-6 + 3 = -3$

$6x(x^2 - 6)(x^2 + 3)$

$x^2 - 6 = 0$ $\quad x^2 + 3 = 0$

$x = 0, \pm\sqrt{6}, \pm i\sqrt{3}$

2. $2x^3 - 5x^2 + 18x - 45 = 0$

	x^2	9
$2x$	$2x^3$	$18x$
-5	$-5x^2$	-45

$(x^2 + 9)(2x - 5)$

$x^2 = -9$ $\quad \frac{2x}{2} = \frac{5}{2}$

$\pm 3i, \frac{5}{2}$ $\quad x = \frac{5}{2}$

Sum and Difference of Cubes

$$a^3 + b^3 = (a + b)(a^2 - ab + b^2)$$

$$a^3 - b^3 = (a - b)(a^2 + ab + b^2)$$

Quadratic Formula

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

3. Factor $27x^3 - 125$

$(3x)^3 - (5)^3$ (a, b)

$(3x - 5)(9x^2 + 15x + 25)$

4. Find ALL Solutions. $8x^3 + 1 = 0$

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

$x = -\frac{1}{2}, \frac{1 \pm i\sqrt{3}}{4}$ $\quad a = 2x$ $\quad b = 1$

solve using Quadratic Formula