Algebra 2 Bellwork Wednesday, December 3, 2014

Factor each completely.

1. $112x^5 - 567x$

2. $x^5 - 9x^3 - 112x$

Find all solutions, real and imaginary, by factoring.

3. $2x^5 - 72x = 0$

4. $x^4 + 9x^2 - 36 = 0$

Algebra 2 Bellwork Wednesday, December 3, 2014 ANSWERS

Factor each completely.

1. $112x^5 - 567x$

$7x(16x^4 - 81)$

$7x(4x^2 - 9)(4x^2 + 9)$

$7x(2x-3)(2x+3)(4x^2+9)$

2. $x^5 - 9x^3 - 112x$

$x(x^4 - 9x^2 - 112)$ $+7$ -16 -112 -9

$x(x^2+7)(x^2-16)$

$x(x^2+7)(x+4)(x-4)$

Find all solutions, real and imaginary, by factoring.

3. $2x^5 - 72x = 0$

$2x(x^4 - 36) = 0$

$2x(x^2-6)(x^2+6) = 0$

$2x = 0 \rightarrow x = 0$

$x^2 - 6 = 0 \rightarrow x = \pm\sqrt{6}$

$x^2 = 6$

$x^2 + 6 = 0 \rightarrow x = \pm i\sqrt{6}$

4. $x^4 + 9x^2 - 36 = 0$

$(x^2-3)(x^2+12) = 0$ -36 -3 $+12$ $+9$

$x^2 - 3 = 0$ $\quad x^2 + 12 = 0$

$\sqrt{x^2} = \sqrt{3}$ $\quad \sqrt{x^2} = \sqrt{-12}$

$x = \pm\sqrt{3}$ $\quad x = \pm 2i\sqrt{3}$