Bellwork Alg 2A Thursday, April 20, 2017

Find all Complex solutions by factoring.

1. $3x^6 - 42x^4 - 216x^2 = 0$

2. $x^{11} - 82x^7 + 81x^3 = 0$

3. $8x^5 - 392x = 0$

4. $2x^3 - 7x^2 + 16x - 56 = 0$

Bellwork Alg 2A Thursday, April 20, 2017 Answers

Find all Complex solutions by factoring.

1. $3x^6 - 42x^4 - 216x^2 = 0$

$3x^2(x^4 - 14x^2 - 72) = 0$

$3x^2(x^2 - 18)(x^2 + 4) = 0$

$x = 0, \pm\sqrt{18}, \pm 2i$

$9 \cdot 2$

$x = 0, \pm 3\sqrt{2}, \pm 2i$

-72, $-18 \cdot 4$, -14

2. $x^{11} - 82x^7 + 81x^3 = 0$

$x^3(x^8 - 82x^4 + 81) = 0$

$x = 0, \pm 3i, \pm 3, \pm i, \pm 1$

$x^3(x^4 - 81)(x^4 - 1) = 0$

81, $-81 \cdot -1$, -82

$x^3(x^2+9)(x^2-9)(x^2+1)(x^2-1) = 0$

$x^3(x^2+9)(x \pm 3)(x^2+1)(x \pm 1) = 0$

3. $8x^5 - 392x = 0$

$8x(x^4 - 49) = 0$

$8x(x^2 + 7)(x^2 - 7) = 0$

$x = 0, \pm i\sqrt{7}, \pm\sqrt{7}$

4. $2x^3 - 7x^2 + 16x - 56 = 0$

	$2x$	-7
x^2	$2x^3$	$-7x^2$
$+8$	$+16x$	-56

$(2x - 7)(x^2 + 8) = 0$

$x = 7/2, \pm i\sqrt{8}$

$x = 7/2 \pm 2i\sqrt{2}$