Bellwork Hon Alg 2 5th & 6th hrs Monday, October 8, 2018

1. Write in Standard Form: $-5\sqrt{-81} - 4$

2. Find ALL EXACT COMPLEX solutions.

a) $4x^5 + 52x^3 + 144x = 0$

b) $3(x-6)^2 + 43 = 7$

3. Simplify. $(5 - 3\sqrt{-16}) - (6 + 2\sqrt{-49})$

Bellwork Hon Alg 2 5th & 6th hrs Monday, October 8, 2018

1. Write in Standard Form: $-5\sqrt{-81} - 4$

ANSWERS

$a+bi$

$= -5 \cdot \sqrt{-1 \cdot 81} - 4$

$= -5 \cdot i \cdot 9 - 4$

$= -45i - 4$

$= \boxed{-4 - 45i}$

2. Find ALL EXACT COMPLEX solutions.

a) $4x^5 + 52x^3 + 144x = 0$

$= 4x(x^4 + 13x^2 + 36) = 0$

36, +9, +4, 13

$= 4x(x^2+9)(x^2+4) = 0$

$4x = 0$ $\quad x^2+9=0$ $\quad x^2+4=0$

$x = 0$ $\quad \sqrt{x^2} = \sqrt{-9}$ $\quad \sqrt{x^2} = \sqrt{-4}$

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

b) $3(x-6)^2 + 43 = 7$

$-43 \quad -43$

$\frac{3(x-6)^2}{3} = \frac{-36}{3}$

$\sqrt{(x-6)^2} = \sqrt{-12} = \sqrt{-1 \cdot 4 \cdot 3}$

$x - 6 = \pm 2i\sqrt{3}$

$+6 \quad +6$

$\boxed{x = 6 \pm 2i\sqrt{3}}$

3. Simplify. $(5 - 3\sqrt{-16}) - (6 + 2\sqrt{-49})$

$= (5 - 3 \cdot 4i) - (6 + 2 \cdot 7i)$

$= (5 - 12i) - (6 + 14i)$

$= \boxed{-1 - 26i}$