First & Last Name_____ Date _____ Period_____

6.8 Solving Polynomials with real and complex roots Practice

Directions: Rewrite the polynomial in factored form and list all the zeros.

1. $f(x) = 3x^3 + 2x^2 - 24x - 16$

$x = \pm 2\sqrt{2}, -\frac{2}{3}$

2. $f(x) = 4x^4 + 49x^2 + 12$

$x = \pm 2\sqrt{3}\,i, \pm\frac{1}{2}i$

3. $f(x) = 3x^3 - 2x^2 + 54x - 36$

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

4. $f(x) = 2x^4 - 162$

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

Directions: Use the Factor theorem to find all the zeros. Write the function in factored form and then list the zeros.

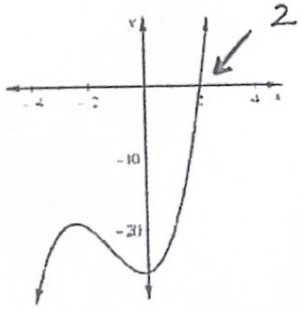
5. $f(x) = 4x^3 - 7x^2 + 2x + 1$
   The function has a zero at 1

$x = -\frac{1}{4}, 1$

6. $f(x) = x^3 - 6x^2 + 7x + 2$
   The function has a factor of $(x - 2)$

$x = 2, 2 \pm \sqrt{5}$

7. The graph of $f(x) = x^3 + 4x^2 + x - 26$ is provided below. Use it to write the function in factored form and then list the zeros.



$x = 2, -3 \pm 2i$