Name: _____   Date: _____

1. Verify that $(x+3)$ is a factor of
$f(x) = x^4 + 9x^2 + 18$

NO

2. Given the factors, determine all of the
x-intercepts of: $f(x) = x(x-3)(2x-5)$

$X = 0, 3, 5/2$

3. Given the zeros, −3, 5, and 2i,
   a. What are the **factors** of the polynomial?

$(x+3)(x-5)(x+2i)(x-2i)$

   b. What is the **standard form** of the polynomial?

$x^4 - 2x^3 - 11x^2 - 8x - 60$

4. Given the zeros, $0, -4, \sqrt{3}, -\sqrt{3}$,
   a. What are the **factors** of the polynomial?

$x(x+4)(x-\sqrt{3})(x+\sqrt{3})$

   b. What is the **standard form** of the polynomial?

$x^4 + 4x^3 - 3x^2 - 12x$

Find all of the indicated zeros, roots, solutions, or factors:

5. $f(x) = x^3 - 125$

zeros: $X = 5, \dfrac{-5}{2} \pm \dfrac{5i\sqrt{3}}{2}$

6. $f(x) = 2x^4 + 3x^3 - 2x^2$

factors: $X, X, (2x-1)(x+2)$

Find all of the indicated zeros, roots, solutions, or factors:

7. $f(x) = x^3 - 7x^2 + 16x - 12$

Factors: $(x-2)(x-2)(x-3)$

8. $f(x) = 3x^3 - 11x^2 - 9x + 50$

Roots: $x = -2, \ 17/6 \pm i\sqrt{11}/6$

9. $f(x) = x^4 - x^3 + x^2 - 7x - 42$

Solutions: $x = -2, \ 3 \pm i\sqrt{7}$

10. $f(x) = 2x^4 + 3x^3 - 30x^2 - 15x + 100$

Zeros: $x = -4, \ 5/2 \pm \sqrt{5}$

11. $f(x) = x^4 + 2x^3 - 7x^2 - 8x + 12$

Factors: $(x+3)(x+2)(x-1)(x-2)$

12. $f(x) = x^4 - 6x^3 - 3x^2 - 24x - 28$

Zeros: $x = -1, \ 7 \pm 2i$