Math 3 Unit 3 Worksheet 2
Graphing Polynomial Functions

Name: ____________________________  Date: _________________  Per: _________

For the functions below, identify each of the listed characteristics.

1. \( y = (x - 2)(x + 5)(x - 1) \)
   a) degree & leading coefficient
   b) end behavior
   c) \( x \)-intercepts with multiplicity
   d) \( y \)-intercept
   e) How many distinct \( x \)-intercepts?
   f) How many roots are there?

2. \( f(x) = x^2(x + 2)(x - 7) \)
   a) degree & leading coefficient
   b) end behavior
   c) \( x \)-intercepts with multiplicity
   d) \( y \)-intercept
   e) How many distinct \( x \)-intercepts?
   f) How many zeros are there?

Sketch graphs of the polynomial functions. Label all \( x \) and \( y \) intercepts.

3. \( y = (x - 1)(x + 3)(x - 4) \)

4. \( f(x) = 2(x + 4)^2(x - 2) \)

5. \( g(x) = -x^2(x - 3) \)

6. \( f(x) = -3(x + 1)(x + 2)(x - 4) \)
Sketch graphs of the polynomial functions. Label all x and y intercepts.

7. $y = x^3 - 2x^2 - x + 2$

8. $y = x^4 - 2x^3 - x^2 + 2x$