5.3 Corrective Assignment – Polynomial Graphs   Name: _____
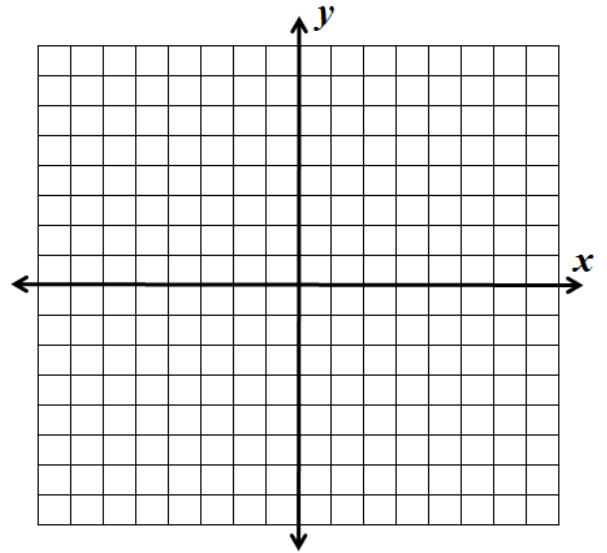
Pre-Calculus

1. $f(x) = -5(x+4)(x-3)(x+1)^3$

   a. How does the graph behave with relation to the x-axis at $x = -1$?

   b. What are the real zeros of the function?

   c. What is the degree of the function?

   d. Describe the end behavior using limit notation.

   e. Sketch a possible graph

2. $f(x) = 4x(x+3)(x-2)^5(x+6)^2$

   a. How does the graph behave with relation to the x-axis at $x = -6$?

   b. What are the real zeros of the function?

   c. What is the degree of the function?

   d. Describe the end behavior using limit notation.
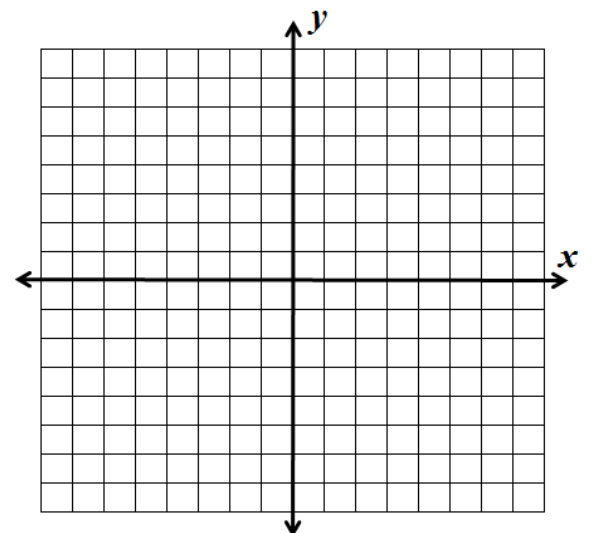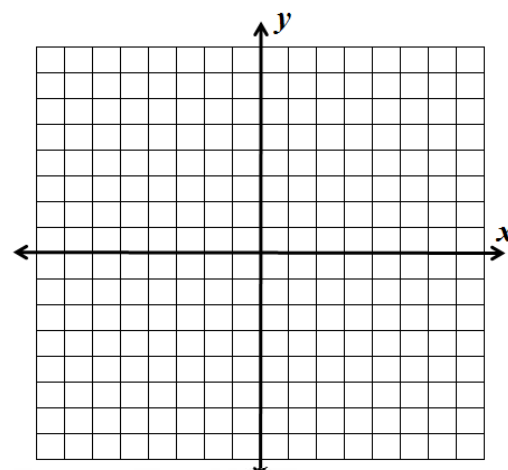
   e. Sketch a possible graph
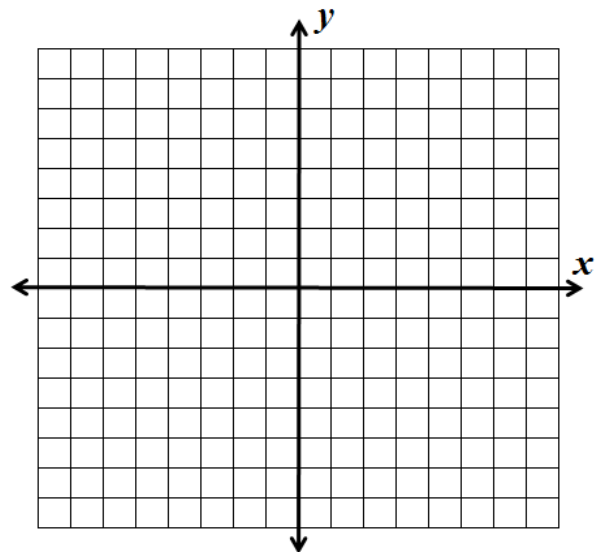
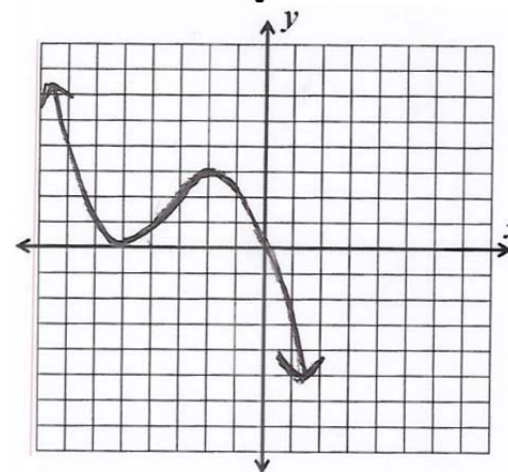3. Factor the function $f(x) = 3x^3 - 5x^2 - 6x + 8$ and sketch the graph if $f(1) = 0$.

4. Factor the function $f(x) = x^4 - 2x^3 - 4x^2 + 8x$ and sketch the graph.

5. Given the graph of $g(x)$ on the right, identify the following:
   a. Local minimum value(s)

   b. Local maximum value(s)

   c. Minimum Degree

   d. Write out a possible function. Leave it in factored form.

6. Given the graph of $g(x)$ on the right, identify the following:
   a. Local minimum value(s)

   b. Local maximum value(s)

   c. Minimum Degree

   d. Write out a possible function. Leave it in factored form.
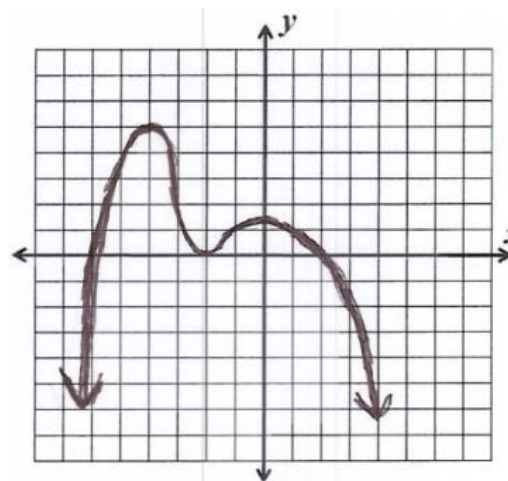
For 7-9, determine the possible numbers of positive real zeros and negative real zeros.

7. $f(x) = 27x^6 - 37x^3 - 64$ 8. $h(x) = 5x^4 - 4x^2 - 12$ 9. $f(x) = 6x^5 - 8x^4 - x^3 + 1$

Positive Zeros: Positive Zeros: Positive Zeros:

Negative Zeros: Negative Zeros: Negative Zeros: