Alg 2 6.1-6.3 Test Review Name_____Hr__
Graphing Calculator Section

1. You want to make a cardboard box. You take an 11-foot by 8-foot piece of cardboard and cut an x-foot by x-foot square out of each corner. You fold up the sides to make the box.
   a) Write an expression to represent the volume of the box. Keep in factored form.
   b) Find the maximum volume in feet of the box. Include a sketch and window.
   c) What is the height, x, of the box that produces the maximum volume?

2. Find the zeros, the relative and/or absolute max's and min's of $y = -3x^3 + 16x^2 + 84x - 96$ Include a sketch and a window.

Non-Calculator Section

3. Divide using long division. Write answer in fraction form & polynomial form.

$$\frac{3x^3 - x^2 - 7x + 6}{x + 2}$$

4. Which of the following are factors of $p(x) = x^3 + 3x^2 - 10x - 24$?
   a) $(x - 3)$ b) $(x + 6)$

5. Given the polynomial, find the zeros, state any multiplicities, find EB, and sketch graph.
   a) $y = (x-2)^2(x+3)$ b) $y = (x+1)(x-3)^3$

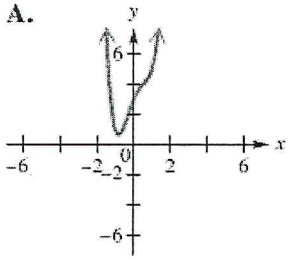
6. Factor, find the zeros, state any multiplicities, find EB, and sketch graph.
   a) $y = x^3 - 6x^2 + 9x$ b) $y = x^4 - x^3 - 6x^2$

7. Based on the end behavior, match each function with its graph. Explain, specifically discussing a & n.

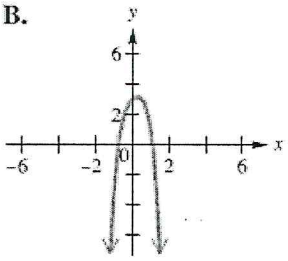
$f(x) = -3x^4 + 2x^3 - 5x + 2$ $g(x) = -9x^3 + 4x^2 - 3$

$h(x) = 4x^4 + 2x^3 - x$ $k(x) = 5x^3 - 2x + 1$

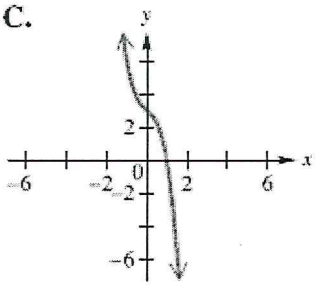
A.



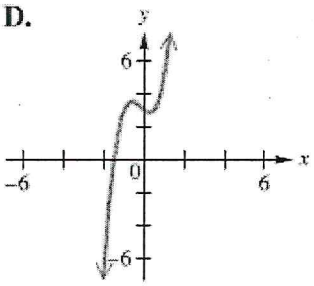
B.



C.



D.



8. Rewrite in standard form. Classify by degree, then by number of terms. Then give EB.
   $f(x) = -x(x + 1)(x - 2)^2$