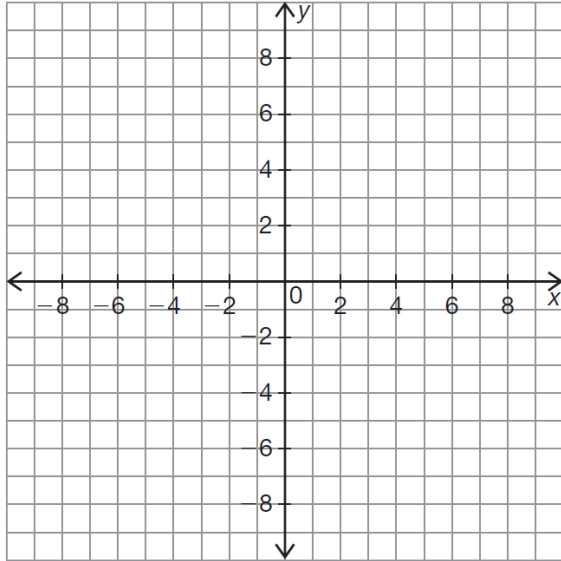


(MATH 4/5 H)

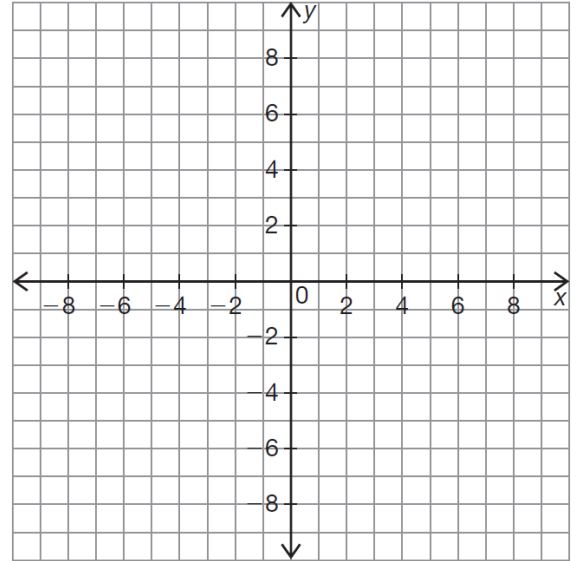
**Power & Polynomial Functions Homework #8**

**Directions: Sketch a graph of each of the functions given the characteristics.**

1.  $f(x)$  is an even degree function that has a relative minimum at  $y=1$  and two absolute maximums at  $y=4$ .

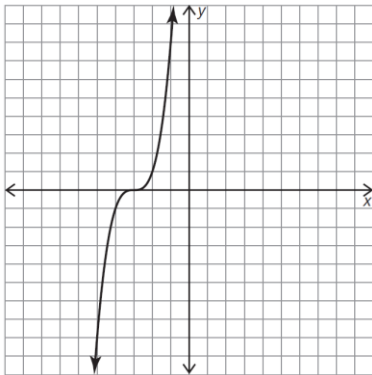


2.  $g(x)$  is an odd degree function that has a  $y$ -intercept at  $y=-2.5$  and  $x$ -intercepts at  $-3$  and  $5$  (mult 2).



**Directions: Determine whether or not each graph could represent each of the functions and explain.**

1.

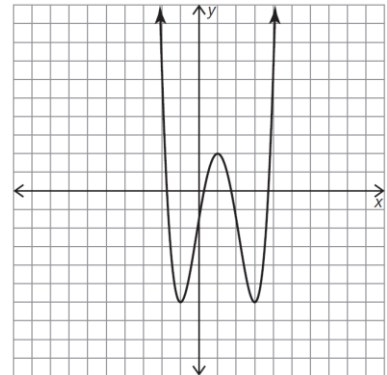


$$f(x) = -x^3 + 2x^2 - x + 3$$

$$g(x) = \frac{1}{2}x(x + 3)^3$$

$$h(x) = (x + 3)^3$$

2.



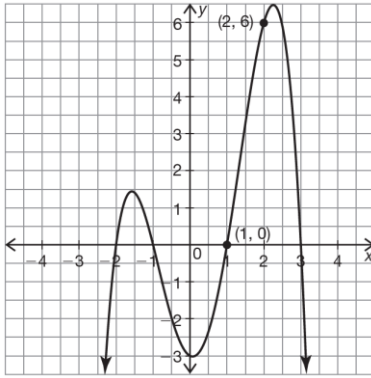
$$f(x) = x^4 - 4x^3 - 2x^2 + 12x - 3$$

$$g(x) = 2(x + 3)(x + 4)$$

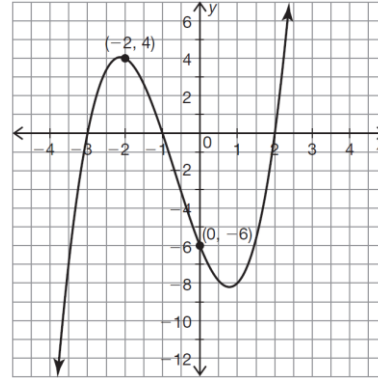
$$h(x) = -2x^4 + x^3 - 3x^2 - 3$$

**Directions: Determine the average rate of change over the intervals provided.**

1. (1,2)



2. (-1,1)



**Directions: Using polynomial or synthetic division, determine whether the given factor is a factor of the polynomial.**

1. Is  $x-1$  a factor of

$$x^4 - 3x^3 + 6x^2 - 12x + 8?$$

2. Is  $x+1$  a factor of  $3x^4 - 10x^3 + 2x^2 - 1$ ?