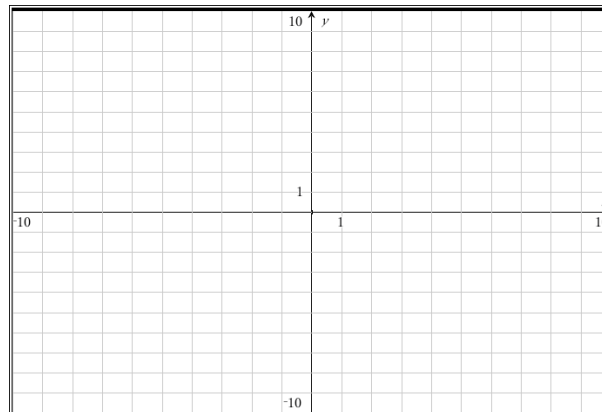


1. Graph:  $h(x) = x^3 - x^2 - 6x$

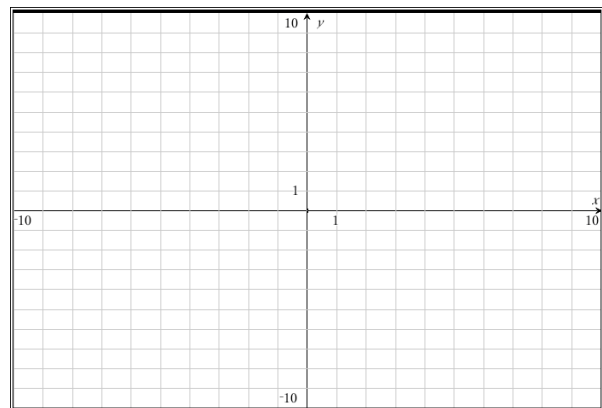


Degree:

y-intercept:

x-intercept(s):

2. Graph:  $f(x) = x^3 + 2x^2$

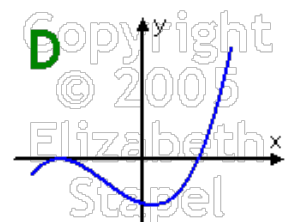
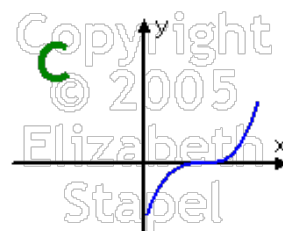
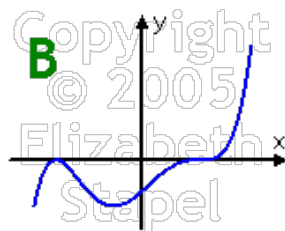
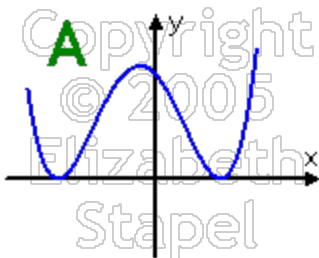


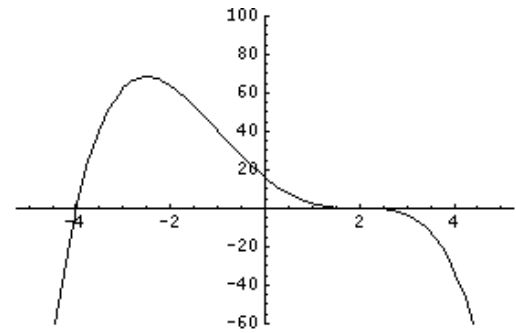
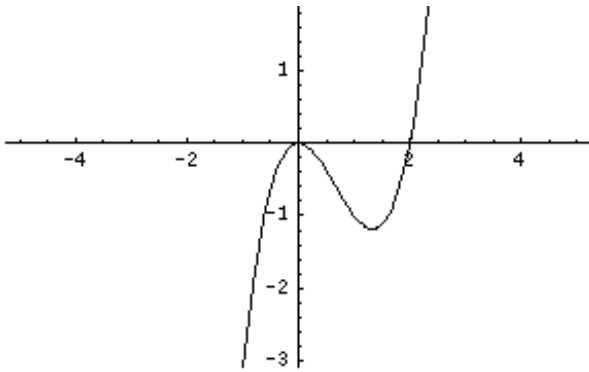
Degree:

y-intercept:

x-intercept(s):

3. Which of the following graphs could represent the polynomial  $f(x) = a(x-b)^2(x-c)^3$ ?





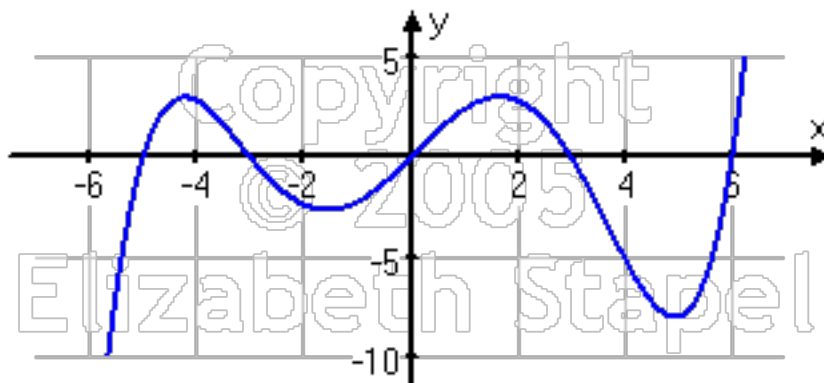
4a. Write a general equation for a function that has these characteristics.

5a. Write a general equation for a function that has these characteristics.

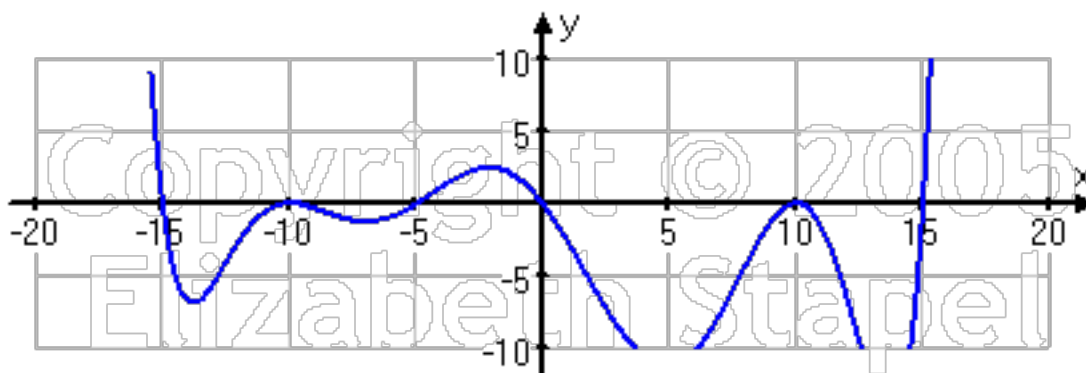
4b. If  $(3, 9)$  is a point on the graph, find the equation of the function.

5b. If  $(0, 16)$  is a point on the graph, find the equation of the function.

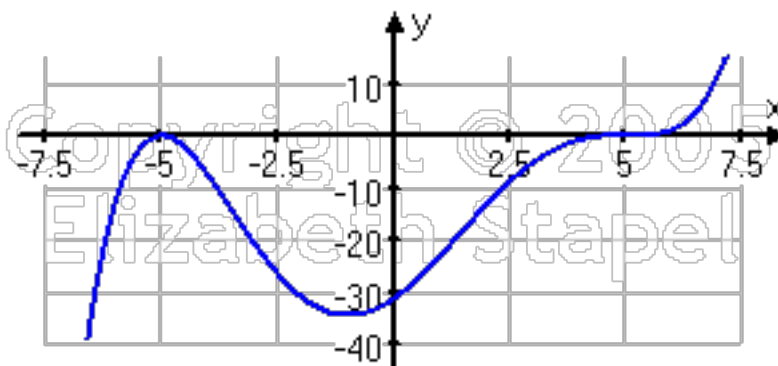
6. What is the minimum possible degree of the polynomial graphed below?



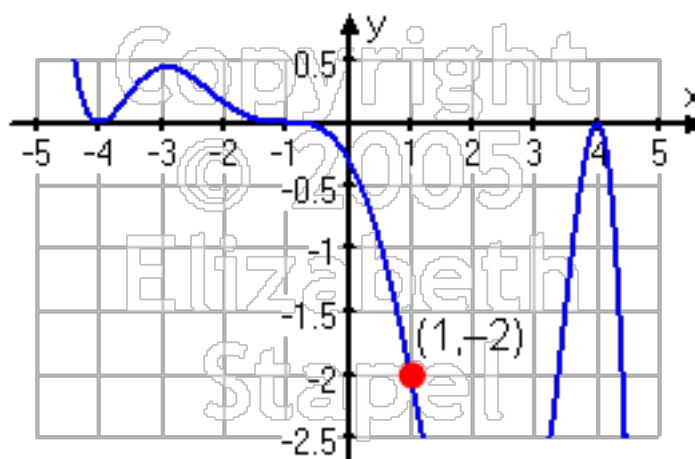
6. The graph shows an eighth degree polynomial. List the polynomial's zeros with their multiplicities.



7. What is the multiplicity for  $x = 5$  given that the graph shows a fifth degree polynomial with all real number roots, and the root  $x = -5$  has a multiplicity of 2?



9. Find the seventh-degree polynomial corresponding to the following graph, given that one of the zeros has a multiplicity of 3.



10. Sketch a graph of the following polynomial.  $f(x) = -\left(\frac{1}{5600}\right)(x+5)^2(x+1)(x-4)^3(x-7)$

11. Match each function to its graph.

a.  $f(x) = 4x^3 - x^2 - 18x + 6$

b.  $g(x) = (x-2)(x+3)(x-4)(x+1)^2$

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

d.  $i(x) = -5(x-3)(x+4)(x-6)$

