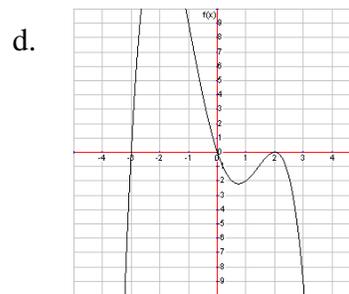
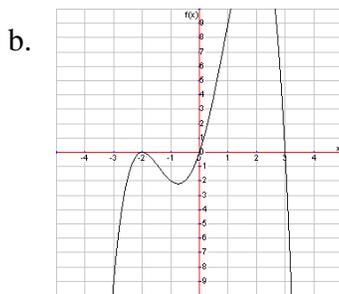
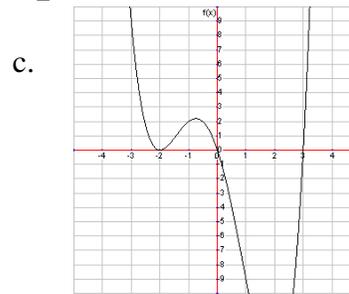
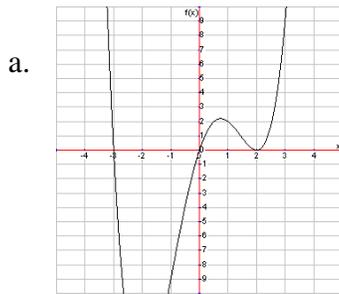




- \_\_\_\_\_ 9. What type of symmetry does the graph of  $y = 7x^7 + 5x^3$  have?
- symmetric with respect to the  $x$ -axis only
  - symmetric with respect to the  $y$ -axis only
  - symmetric with respect to the origin only
  - symmetric with respect to the  $x$ -axis,  $y$ -axis, and origin
- \_\_\_\_\_ 10. What are the zeros of the quadratic function  $f(x) = x^2 - x - 6$ ?
- 2 and 3
  - 3 and 2
  - 6 and 1
  - 1 and 6
- \_\_\_\_\_ 11. Consider the fourth degree function  $M(x) = (x - 5)^3(x - 1)$ . How many times will the function's graph cross the  $x$ -axis?
- 4
  - 3
  - 2
  - 1
- \_\_\_\_\_ 12. Which of the following statements describes an even function?
- $f(-x) = -f(x)$
  - $f(x) = -f(x)$
  - $f(-x) = f(x)$
  - $f(x) = f(x+1)$
- \_\_\_\_\_ 13. The graph of a certain polynomial function has the following characteristics:
- The graph goes downward on the left and upward the right
  - The graph has two relative minimum and two relative maxima.
  - The graph has exactly 2 zeros.
- Which of the following could be the degree of the function?
- degree 2
  - degree 3
  - degree 4
  - degree 5
- \_\_\_\_\_ 14. Which best describes the end behavior of the graph of the polynomial function  $f(x) = -x^4 + x^2 - 2x + 5$ ?
- The graph increases without limit on the left and decreases without limit on the right.
  - The graph decreases without limit on both the left and the right.
  - The graph increases without limit on both the left and the right.
  - The graph decreases without limit on the left and increases without limit on the right.
- \_\_\_\_\_ 15. Which of the following describes the zeros of the polynomial function  $g(x) = (x - 3)^3(x + 3)^2(-x + 2)$ ?
- 3 (multiplicity 2); 3 (multiplicity 3); 2
  - 9 (multiplicity 2); 9 (multiplicity 3); -2
  - 3 (multiplicity 4); 2
  - 3 (multiplicity 4); -2

\_\_\_\_\_ 16. Which is the graph of the function  $f(x) = \frac{1}{2}x(x-3)(-x-2)^2$ ?



\_\_\_\_\_ 17. For which polynomial function does its graph have an absolute minimum?

a.  $f(x) = x^2 + 5x + 5$

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

b.  $g(x) = x^3 - x$

d.  $j(x) = -x^4 - x^2$

\_\_\_\_\_ 18. Which best describes the end behavior of the graph of the polynomial function  $f(x) = -3x(x+2)^3(-x+1)^3$ ?

- a. The graph increases without limit on the left and decreases without limit on the right.
- b. The graph decreases without limit on both the left and the right.
- c. The graph increases without limit on both the left and the right.
- d. The graph decreases without limit on the left and increases without limit on the right.

19. What is the function shown in the graph below?

