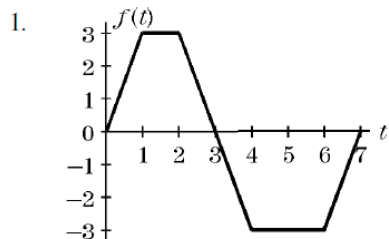


AP Calculus Analyzing Graphs of Functions

Name: \_\_\_\_\_

Date: \_\_\_\_\_



Given the graph of  $f(t)$ , sketch the graph of  $|f(t)|$ . Be sure to label your graph.

2. Answer using one of: EVEN, ODD, or NEITHER.

$f(x) = x^4 + 4x^2$  is \_\_\_\_\_.

3. Which of the following is an odd function?

- A.  $f(x) = x^2 - 2$       B.  $f(x) = 3$   
 C.  $f(x) = x^5 - 4x$       D.  $f(x) = x^3 - x^2$

4. Sketch the graph of the function  $L(x) = -(x-2)^2 - 5$  without the use of a calculator

5. How will the graph of the function  $f(x) = 3^x$  translate when the function is changed to  $f(x) = 3^{(x-2)}$ ?

6. In which direction must the graph of  $y = \frac{1}{x}$  be shifted to produce the graph of  $y = \frac{1}{x+2}$ ?

7. When  $f(x) = x^2 - 4x + 7$  is written in the form  $f(x) = (x-2)^2 + 3$ , which properties of the graph are revealed?

- A. Axis of symmetry, maximum  
 B. Axis of symmetry, minimum  
 C. Zeros, maximum  
 D. Zeros, minimum

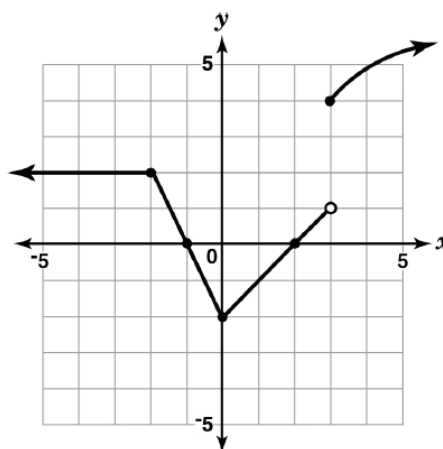
8. The graph of the quadratic equation  $y = (x+1)^2 - 3$  is reflected across the  $y$ -axis and then translated 2 units down. Which are the coordinates of the vertex of the new graph?

- A.  $(-1, 1)$       B.  $(1, -1)$   
 C.  $(1, -5)$       D.  $(-1, -5)$

9. Given the function  $g(x) = k \cdot f(x)$ , describe how the graph would change if  $k = 1$ ,  $k > 1$ ,  $k < 1$  and  $0 < k < 1$

10. When is  $f(x) = x^2 - x - 12$  increasing?

11. Look at the graph below.



What is the  $x$ -value of the point where the graph is *not* continuous?

12. Which of the following is a graph with a vertex at  $(-3, 2)$ ?

- A.  $y = 2 - |x - 3|$       B.  $y = -2 - |x + 3|$   
 C.  $y = |x - 3| - 2$       D.  $y = |x + 3| + 2$

13. What are the  $x$ -intercepts for the function  $f(x) = x^2 + 2x - 15$ ?