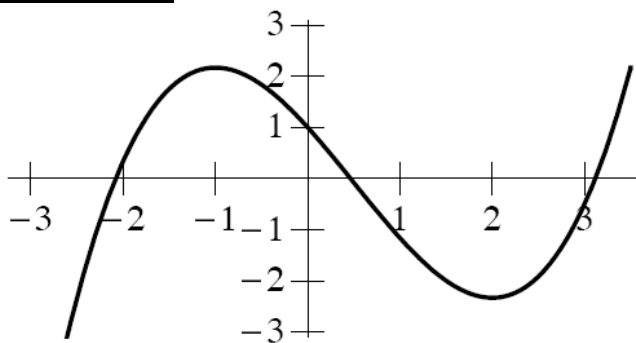


The graph of a function f is given below.



1) ESTIMATE the values of $f'(x)$ at each of the following x -values.

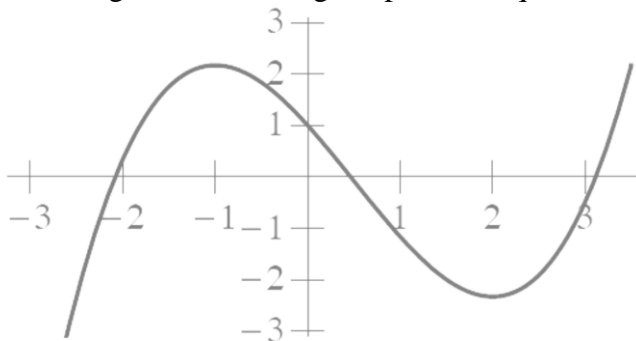
(a) $x = -2$

(b) $x = -1$

(c) $x = 0$

(d) $x = 3$

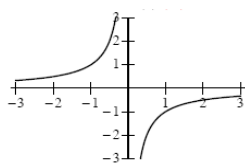
2) Sketch the derivative graph on the figure below using the points on question 1.



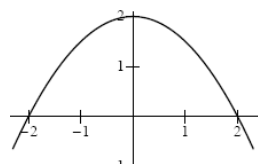
Match each graph of the function in the top row with the graph on the function's first derivative in the bottom row. Each choice will be used once. Write the letter in capital letters.

Function:

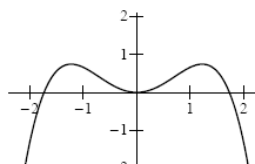
_____ 3)



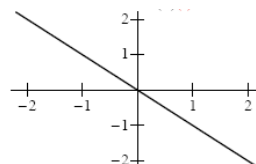
_____ 4)



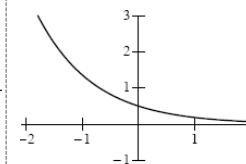
_____ 5)



_____ 6)

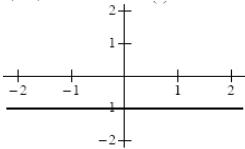


_____ 7)

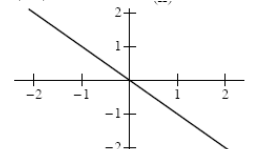


First Derivative:

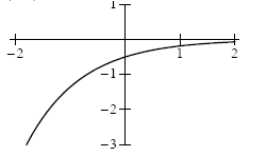
(A)



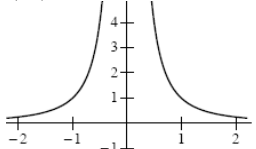
(B)



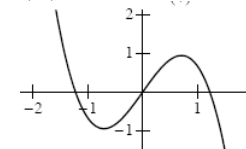
(C)



(D)



(E)



Use the alternative form of the derivative to find the derivative at $x = c$, if it exists.

8) $f(x) = x^2 - 5$, $c = 3$

9) $f(x) = x^3 + 2x^2 + 1$, $c = -2$

10) $g(x) = \sqrt{|x|}$, $c = 0$

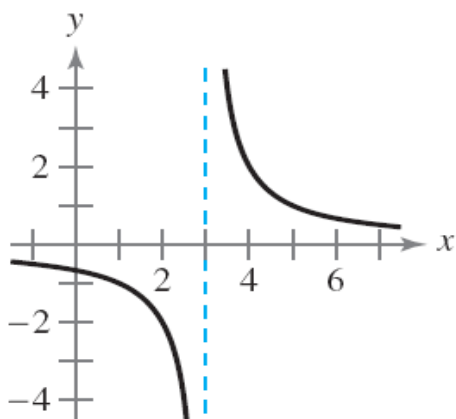
11) $f(x) = (x - 6)^{2/3}$, $c = -2$

12) $h(x) = |x + 7|$, $c = -7$

Describe the x -values at which f is differentiable.

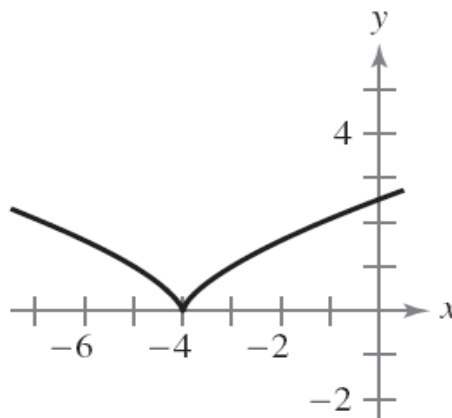
13)

$$f(x) = \frac{2}{x - 3}$$



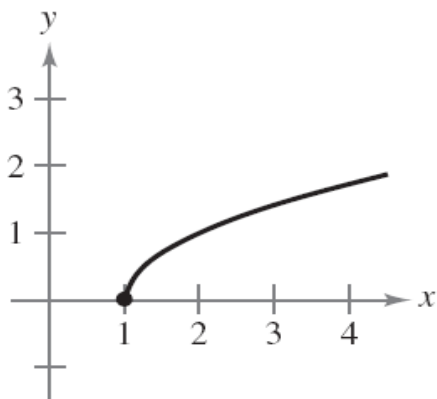
14)

$$f(x) = (x + 4)^{2/3}$$



15)

$$f(x) = \sqrt{x - 1}$$



16)

$$f(x) = \begin{cases} x^2 - 4, & x \leq 0 \\ 4 - x^2, & x > 0 \end{cases}$$

