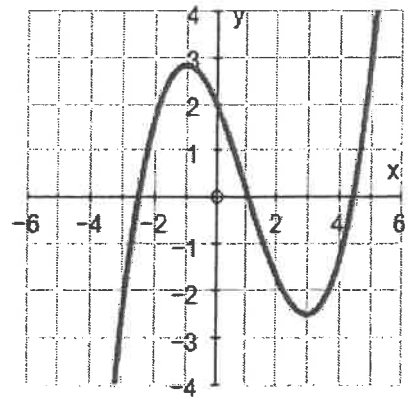


9. Use the graph of $f(x)$ shown to the right.



a) Where is $f'(x) = 0$? Explain.

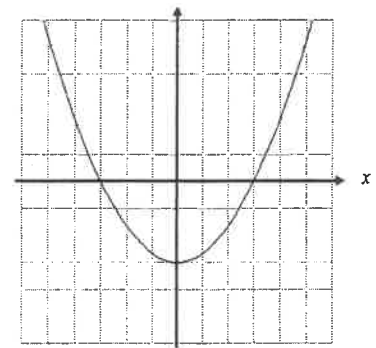
b) Where is $f'(x) > 0$? Explain.

c) Where is $f'(x) < 0$? Explain.

d) On the same graph, draw a possible sketch of $f'(x)$.

10. The figure to the right shows the graph of $g'(x)$.

The graph of $g'(x)$



a) What does $g'(0) = ?$... How about $g'(3)$?

c) From the graph, $g'(1) = -\frac{8}{3}$. What does this tell us about the graph of g ?

d) From the graph, $g'(4) = \frac{7}{3}$. What does this tell us about the graph of g ?

e) Is $g(6) - g(4)$ positive or negative (those are g values not g')? Explain.

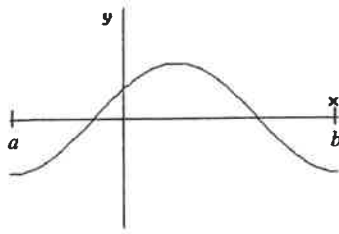
f) Find (if they exist) any value(s) of x , where $g'(x) = 0$?

g) Is it possible to find $g(2)$ from this graph? Explain.

h) What interval is $g(x)$ increasing? What interval is $g(x)$ decreasing? How do you know?

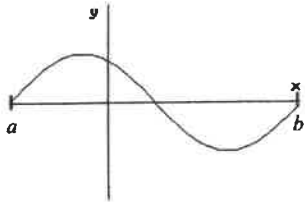
i) If you were told that $g(2) = 1$, sketch a possible graph of $g(x)$?

11. The graph of f is shown below.

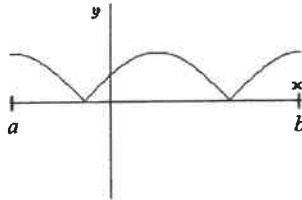


Which of the following could be the graph of the derivative of f ?

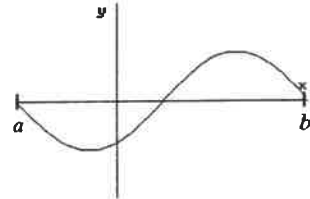
A.



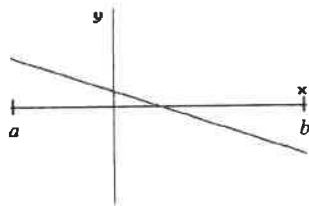
B.



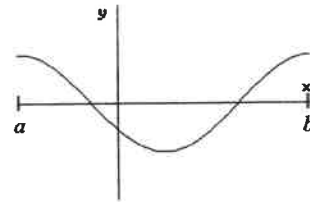
C.



D.

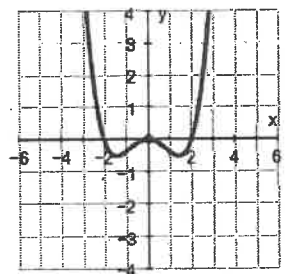
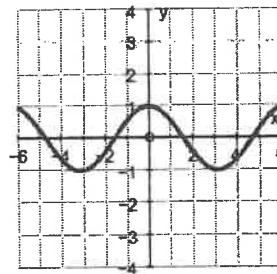
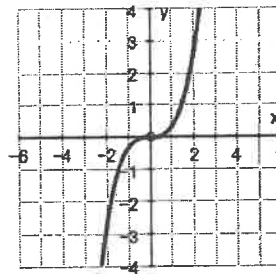
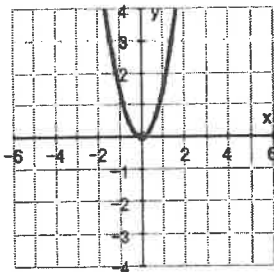
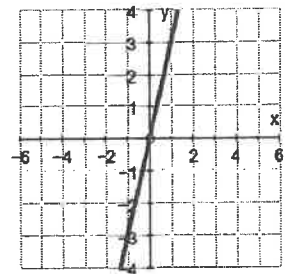
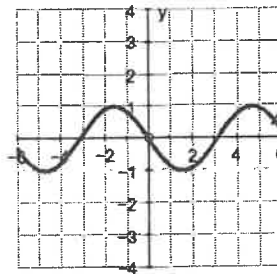
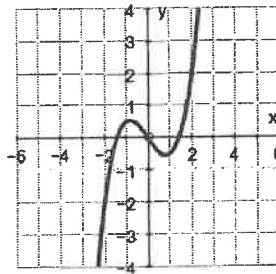
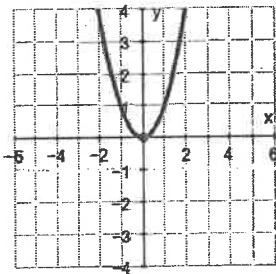


E.



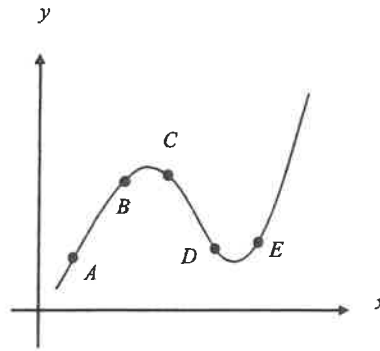
12. The graphs in the first row are the derivatives. Match them with the graph of their function shown in the second row.

(Graphs of Derivative)



(Graphs of Function)

13. Use the graph of f below to answer each question.



a) Between which two consecutive points is the average rate of change of the function greatest?

b) Is the average rate of change between A and B greater than or less than the instantaneous rate of change of B ?

c) Give any sets of consecutive points for which the average rates of change of the function are approximately equal.

d) Sketch a tangent line to the graph somewhere between the points B and C such that the slope of the tangent line you draw is the same as the average rate of change of the function between B and C . (Do you think it would be possible to do this for ANY two points on a curve?)

14. Sketch the graph of a continuous function f with $f(0) = 1$ and $f'(x) = \begin{cases} 2 & \text{if } x < 2 \\ -1 & \text{if } x > 2 \end{cases}$

