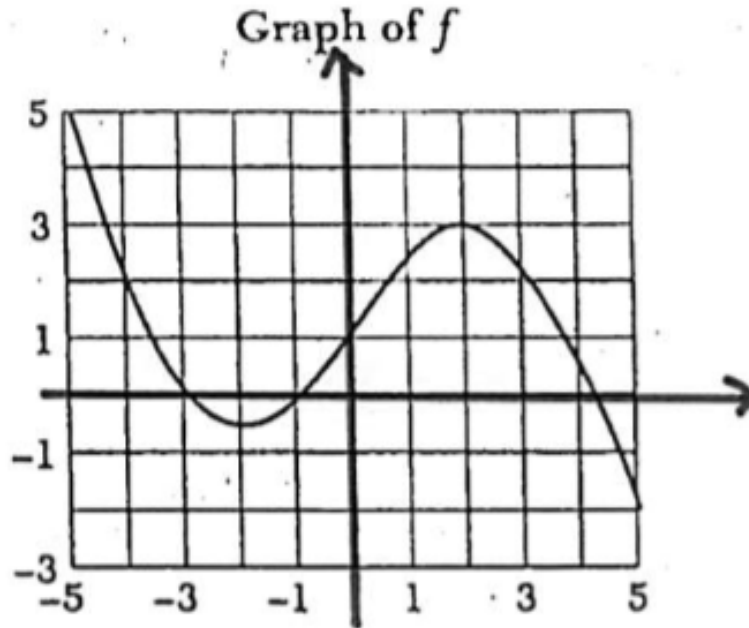

Amount and Rate Functions – (e.g. f and f')

1. f and f' Assume the domain of f is $x \in (-5, 5)$. (Rewrite this symbolic domain description in English.)

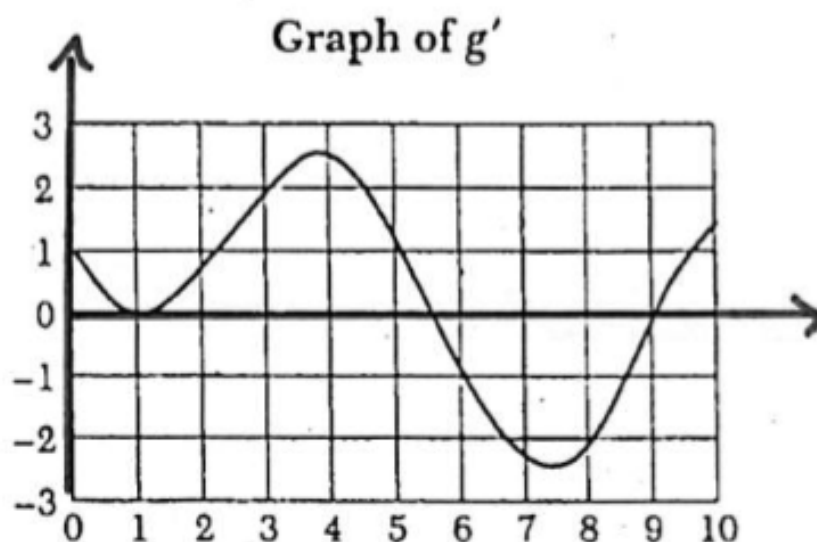
The graph of a function f is shown below.



- On which intervals is f' negative? Positive?
- On which intervals is f' increasing? Decreasing?
- Where does f' achieve its maximum value? Estimate this value of f' .
- Where does f' achieve its minimum value? Estimate this value of f' .
- Sketch a graph of f' . [NOTE: Your sketch should be consistent with your answers to parts (a)–(d).]

2. g' and g Assume the domain of g is $x \in (0, 10)$.

The graph of the derivative of a function g is shown below. Use the graph of g' to answer the following questions about g . [NOTE: The graph of g is not shown.]



- (a) Where does g have stationary points?
- (b) Where does g have local maxima? Local minima?
- (c) The graph of g' has a local maximum at $x = 3.8$ and a local minimum at $x = 7.4$. What do these facts say about the graph of g ?
- (d) Is g concave up or concave down at $x = 5$? At $x = 8$? Justify your answers.
- (e) Suppose that $g(0) = 0$. Sketch a graph of g .