QUIZ 3

Instructions: Complete the following problems. Be sure to show your work when you make 'significant' leaps in problem solving. Answers which are not accompanied by justification will receive little or no credit.

(1) (20 pts) For a function $f(x)$, the derivative $f'(x)$ is defined to be a certain limit. Write that limit.

(2) (25 pts) For $f(x) = (1 + x)^2$, compute $f'(x)$ by evaluating an appropriate limit.

(3) (25 pts) For $f(x) = \frac{x}{x+1}$, compute $f'(x)$ by evaluating an appropriate limit.
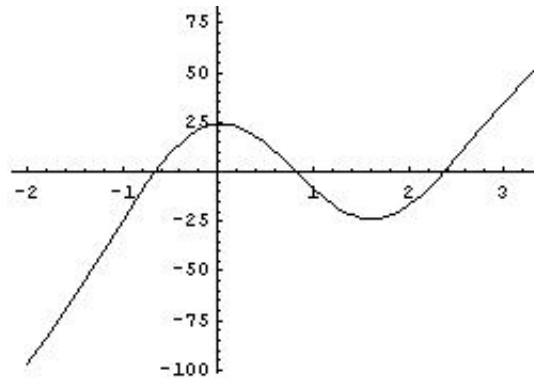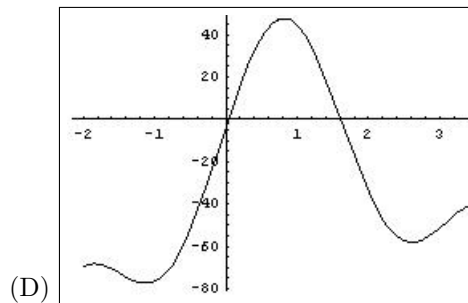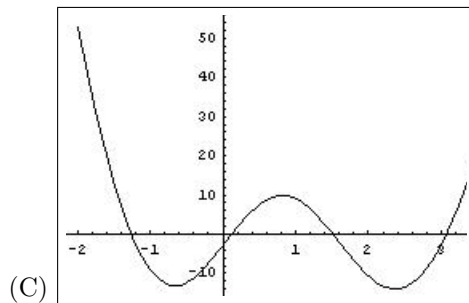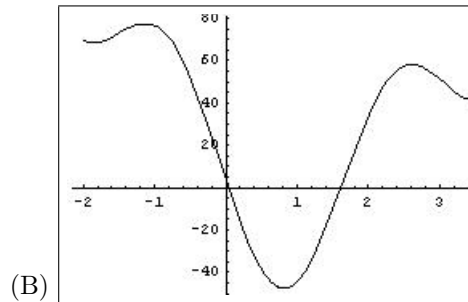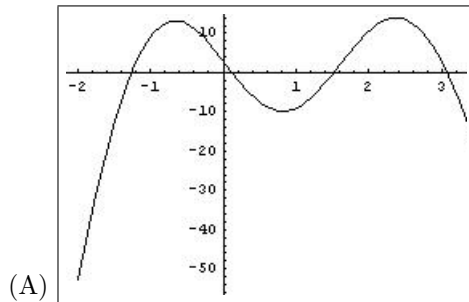
(4) (30 pts) The graph of $g(x)$ is

FIGURE 1. The graph of $g(x)$

Which of the following 4 graphs could be the graph of $\dfrac{d}{dx}[g(x)]$? Why? Remember, an answer with no justification will receive severely reduced credit, if any at all.

(A)

(B)

(C)

(D)

If you finish early, you can use this space to draw a picture.