The Derivative and the Slope of a Graph

1. Use the limit definition to find the derivative of the function
(similar to p.89 #27-40)

$$f(x) = 9x + 2$$

2. Use the limit definition to find the derivative of the function
(similar to p.89 #27-40)

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

3. Use the limit definition to find the derivative of the function
(similar to p.89 #27-40)

$$f(x) = \sqrt{x-3}$$

4. Use the limit definition to find the derivative of the function
(similar to p.89 #27-40)

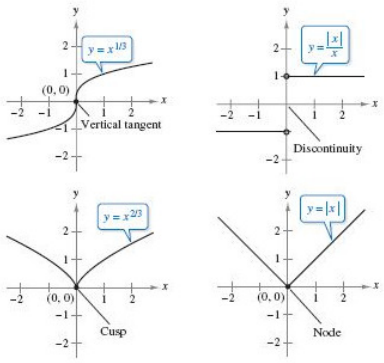
$$f(x) = \frac{1}{x-3}$$

5. Use the limit definition to find the slope of the tangent line to the graph of f at the given point
(similar to p.89 #17-26)

$$f(x) = x^3 - 3x; (1,-2)$$

6. Use the limit definition to find an equation of the tangent line to the graph of f at the given point
(similar to p.90 #41-48)

$$f(x) = x^2 + 2x - 4; (1,-1)$$



Functions That Are Not Differentiable at $x = 0$
FIGURE 2.11