Tutorial 5

Week of October 15, 2018

Review Figure 7 on Page 158 for instances when a function is not differentiable at a point.

1. Find the equation of the tangent line to the curve at the given point.

$$f(x) = \frac{1}{x-1}, \quad P(2,1)$$

2. (a) Find the slope of the tangent to the curve $y = 1/\sqrt{x}$ for any given x in the domain.

   (b) Find equations of the tangent lines at the points $(1,1)$ and $\left(4, \frac{1}{2}\right)$.

3. If an equation of the tangent line to the curve $y = f(x)$ at the point where $a = 2$ is $y = 4x - 5$, find $f(2)$ and $f'(2)$.

4. If the tangent line to $y = f(x)$ at $(4,3)$ passes through the point $(0,2)$, find $f(4)$ and $f'(4)$.

5. Find the derivative of the function using the definition of derivative.

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

   (b) $f(x) = x^4$