

Set 007 Derivatives (3 limit formulas)

For each function, set up a limit and evaluate it to find the derivative function

$$[1] f(x) = \frac{1}{2x-3} \quad [2] v(t) = \frac{t}{t+1} \quad [3] r(\theta) = \sqrt{3\theta-5} \quad [4] x(t) = 4t^3 - 2t + 1$$

For each function, set up a limit as h approaches zero and evaluate it to find the value of the derivative at the given point.

$$[5] g(x) = \frac{5}{x} \text{ at } x=2 \quad [6] y(t) = 3t^2 - 2t + 1 \text{ at } t=-2 \quad [7] r(\theta) = \sqrt{6\theta+1} \text{ at } \theta=4$$

For each function, set up a limit as x approaches a constant and evaluate it to find the value of the derivative at the given point. Also, write the equation of the tangent line at the given point.

$$[8] p(x) = 2 + 5x - x^2 \text{ at } x=1 \quad [9] f(x) = \frac{x}{2x-1} \text{ at } x=2 \quad [10] f(x) = \sqrt{3x+1} \text{ at } x=5$$