

Rate of Change

1. Average Rate of Change is the same as _____.
2. Instantaneous Rate of Change is the same as _____.

Find the average rate of change for the following functions over the interval given.

3. $f(x) = x^2 - x + 1$; $[0,3]$

4. $f(x) = -\frac{1}{x-2}$; $[-3,1]$

Find the instantaneous rate of change for the following functions at the given point. Then write the equation of the tangent line and the normal line at the given point.

5. $f(x) = 2x^2 - 5x$; at $x = 0$

6. $f(x) = \frac{1}{x+4}$; at $x = 1$

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Find the general equation for the slope of the tangent line for the functions.

8. $f(x) = -5x^2 + 4x$

9. $f(x) = x^3$

10. $f(x) = \frac{2}{2x-1}$

11. $f(x) = \sqrt{x}$