

1.(1 pt) Consider the function $f(x) = 2 - 5x^2$ on the interval $[-4, 3]$. Find the average or mean slope of the function on this interval, i.e.

$$\frac{f(3) - f(-4)}{3 - (-4)} =$$

By the Mean Value Theorem, we know there exists a c in the open interval $(-4, 3)$ such that $f'(c)$ is equal to this mean slope. For this problem, there is only one c that works. Find it.

2.(1 pt) Consider the function

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

Find the average slope of this function on the interval $(3, 5)$. —
 By the Mean Value Theorem, we know there exists a c in the open interval $(3, 5)$ such that $f'(c)$ is equal to this mean slope. Find the value of c in the interval which works _____

3.(1 pt) Consider the function $f(x) = 2x^3 - 4x$ on the interval $[-5, 5]$. Find the average or mean slope of the function on this interval. _____

By the Mean Value Theorem, we know there exists at least one c in the open interval $(-5, 5)$ such that $f'(c)$ is equal to this mean slope.

For this problem, there are two values of c that work. The smaller one is _____ and the larger one is _____

4.(1 pt) Consider the function $f(x) = 2x^3 - 3x^2 - 72x + 8$ on the interval $[-6, 10]$. Find the average or mean slope of the function on this interval.

By the Mean Value Theorem, we know there exists a c in the open interval $(-6, 10)$ such that $f'(c)$ is equal to this mean slope. For this problem, there are two values of c that work. The smaller one is _____

and the larger one is _____

5.(1 pt) Consider the function $f(x) = \frac{1}{x}$ on the interval $[3, 6]$. Find the average or mean slope of the function on this interval.

By the Mean Value Theorem, we know there exists a c in the open interval $(3, 6)$ such that $f'(c)$ is equal to this mean slope. For this problem, there is only one c that works. Find it.

6.(1 pt) Consider the function $f(x) = 4\sqrt{x} + 5$ on the interval $[4, 9]$. Find the average or mean slope of the function on this interval.

By the Mean Value Theorem, we know there exists a c in the open interval $(4, 9)$ such that $f'(c)$ is equal to this mean slope. For this problem, there is only one c that works. Find it.