

## **Average and instantaneous rates of change**

The **average rate of change** between two points on a function is the **slope** of a secant line drawn between those two points.

The **instantaneous rate of change** of a function at a point on that function is the **slope** of a tangent to the curve at that point.

**Example 1:** Find the average rate of change of the function  $f(x) = 3x^2 + 2$  between  $x = 1$  and  $x = 4$ .

**Example 2:** Find the instantaneous rate of change of the function  $f(x) = 3x^2 + 2$

**Example 3:** Find the average velocity of the object whose time-position is given by  $s(t) = t^2 - 6t - 3$  meters, between  $t = 2$  sec and  $t = 6$  sec.

**Example 4:** Find the instantaneous velocity of the object whose time-position is given by  $s(t) = t^2 - 6t - 3$  meters

Example 5: Find the instantaneous rate of change  
for  $f(x) = 2/x$