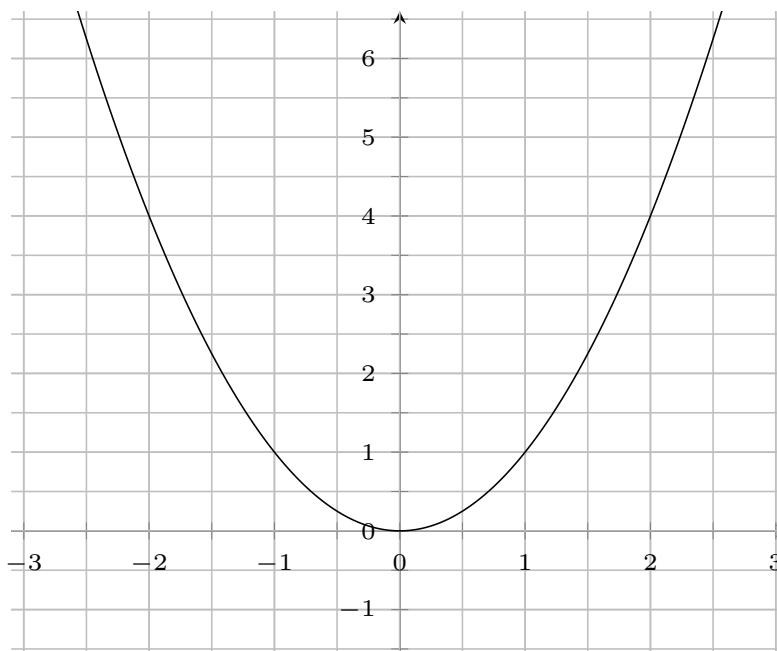


Definition of the Derivative

For a function $f(x)$, its derivative is written $f'(x)$ (we call it “ f prime of x ”). Write down the two equivalent formulas for $f'(x)$.

Let us consider the function $f(x)$ below. Drawing the tangent line, we want to estimate the value of the derivative $f'(x)$ at the points $x_0 = -1$, $x_0 = 0$, $x_0 = 1$, $x_0 = 2$.



- i) What is your estimate for $f'(-1)$ (this notation stands for the derivative of $f(x)$ at the point $x_0 = -1$)? What about $f'(0)$, $f'(1)$ and $f'(2)$?

- ii) As you may have guessed, the function above is $f(x) = x^2$.
Using the definition of the derivative (that you have written above), compute the derivative $f'(1)$.
Does your answer correspond your estimate?

- iii) Compute the derivative $f'(2)$ using the definition.

- iv) Still using the definition of the derivative, compute $f'(x)$ for any x .