

A graph illustrating the difference quotient for a function f . A black curve represents the function f . A point P is marked on the curve at $(a, f(a))$, indicated by a black dot and labeled $P: (a, f(a))$. A blue secant line passes through P and another point on the curve located directly above it, representing the function value at $a-h$. The vertical distance between these two points is highlighted with an orange right-angled triangle. The horizontal leg of this triangle is labeled h , representing the change in the input. The vertical leg is labeled $f(a) - f(a-h)$, representing the change in the output.

$$f(a) - f(a-h)$$

$$P: (a, f(a))$$

$$h$$