

Quiz 3

Let $f(x) = 3x - 4$. Compute and simplify the difference quotient

$$\frac{f(x + h) - f(x)}{h}, h \neq 0.$$

Solution: First note that $f(x + h) = 3(x + h) - 4$ and $f(x) = 3x - 4$, so $f(x + h) - f(x) = 3x + 3h - 4 - (3x - 4) = 3x + 3h - 4 - 3x + 4 = 3h$. Therefore, the difference quotient is $3h/h = 3$.