The following statements refer to the same thing.

1. The slope of $y = f(x)$ at $x = x_0$.

2. The slope of the tangent to the curve $y = f(x)$ at $x = x_0$.

3. The rate of change of $f(x)$ with respect to $x$ at $x = x_0$.

4. The limit of the difference quotient: $\lim_{h \to 0} \frac{f(x + h) - f(x)}{h}$

5. The limit of the difference quotient: $\lim_{\Delta x \to 0} \frac{f(x + \Delta x) - f(x)}{\Delta x}$

6. $\lim_{x \to x_0} \frac{f(x) - f(x_0)}{x - x_0}$

7. The derivative of $f$ at $x = x_0$.

8. $f'(x_0)$

9. $y'(x_0)$

10. $\frac{dy}{dx} \bigg|_{x=x_0}$

11. $\frac{df}{dx} \bigg|_{x=x_0}$