Use equation 3.3 or 3.4 below to find
a. the slope of the tangent line
b. the equation of the tangent line.

Definition

Let $f(x)$ be a function defined in an open interval containing a. The *tangent line* to $f(x)$ at a is the line passing through the point $(a, f(a))$ having slope

$$m_{\tan} = \lim_{x \to a} \frac{f(x) - f(a)}{x - a} \tag{3.3}$$

provided this limit exists.

Equivalently, we may define the tangent line to $f(x)$ at a to be the line passing through the point $(a, f(a))$ having slope

$$m_{\tan} = \lim_{h \to 0} \frac{f(a+h) - f(a)}{h} \tag{3.4}$$

provided this limit exists.

13. $f(x) = x^2 + x,\ a = 1$