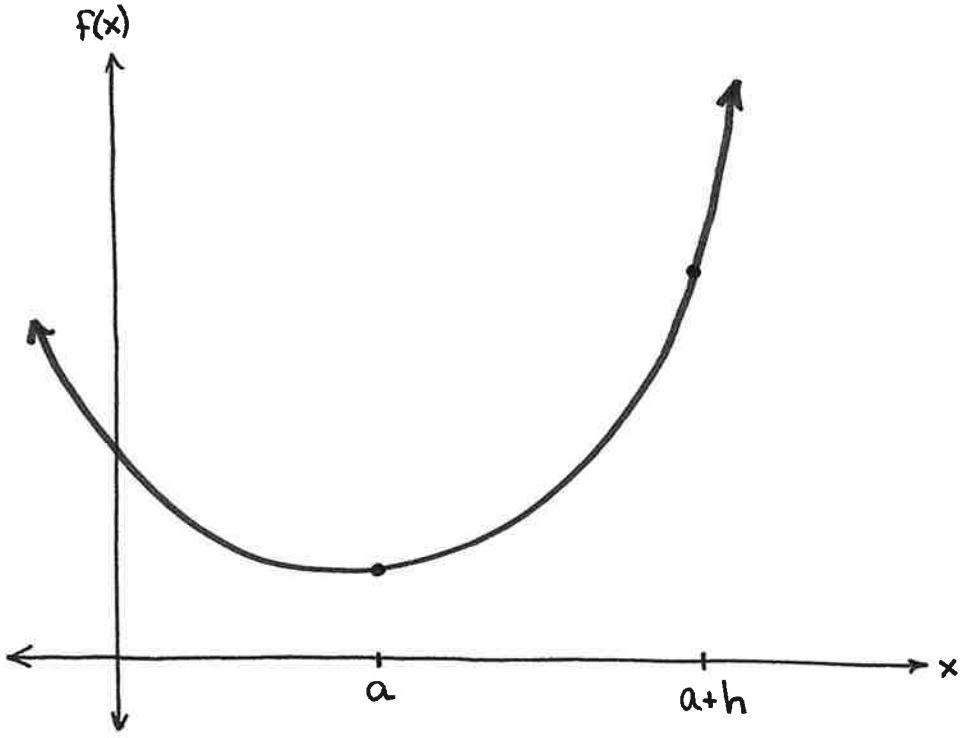
MATH 1325
Chapter 11.4: Tangent Lines And Derivatives



TANGENT LINE: $\lim_{h \to 0} \frac{f(a+h)-f(a)}{h}$: SLOPE OF CURVE AT POINT
SLOPE

CONSIDER $f(x) = x^2 + 2$.
FIND THE SLOPE OF THE LINE TANGENT TO THE CURVE AT $X = -1$.

Consider $f(x) = 7x + 3$.

Find the slope of the tangent line at $x = a$.

Derivative: Instantaneous Rate of Change of Function $f(x)$

$$\text{IROC of } f(x) = f'(x)$$

$$f'(a) = \lim_{h \to 0} \frac{f(a+h) - f(a)}{h}$$

Consider $f(x) = -10x^2 + 3x - 7$.

Find $f'(x)$.

Find $f'(1)$.

Find the equation of the line tangent to $f(x)$ at $x = 1$.

Let $f(x) = \frac{1}{x}$. Find $f'(x)$.

Let $f(x) = \sqrt{x}$. Find $f'(x)$.

If the limit does not exist, then the derivative does not exist.