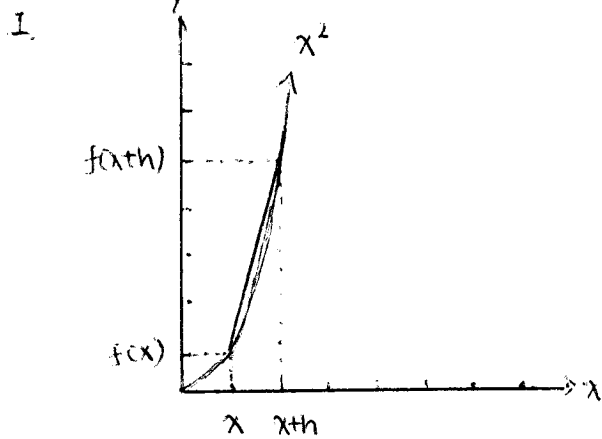


# Math Analysis A Handwritten Quiz



2 slope =  $m = \frac{y_2 - y_1}{x_2 - x_1}$

slope of secant:

$$m = \frac{f(x+h) - f(x)}{(x+h) - x}$$

slope of tangent to the curve:

$$m = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{(x+h) - x}$$

3 Given:  $f(x) = x^2 + 3$

$$f'(x) = \lim_{h \rightarrow 0} \frac{(x+h)^2 - x^2}{x+h - x}$$

$$f'(x) = \lim_{h \rightarrow 0} \frac{x^2 + 2xh + h^2 - x^2}{x+h - x}$$

$$f'(x) = \lim_{h \rightarrow 0} \frac{h(2x+h)}{h}$$

$$f'(x) = 2x$$

## 4 Power Rule

$$f'(x) = 2x^{2-1}$$

$$f'(x) = 2x$$

5.  $f(x) = x^2 + 3$

$$f(-2) = (-2)^2 + 3$$

$$f(-2) = 7$$

coordination of the point:

$$(-2, 7)$$

{ Given  $f(x) = x^2 + 3, x = -2$  }

$$f'(x) = m = 2x$$

$$f'(-2) = 2(-2)$$

$$m = -4$$

$$y_2 - y_1 = m(x_2 - x_1)$$

$$y_2 - 7 = -4(x + 2)$$

$$y - 7 = -4x - 8$$

$$\boxed{y = -4x - 1}$$

slope-intercept form

$$\boxed{4x + y = -1}$$

standard form

6.  $F(x) = \frac{x^{n+1}}{n+1} + C$

$$F(x) = \frac{2x^{1+1}}{1+1} + C$$

$$F(x) = \frac{2x^2}{2} + C$$

$$F(x) = x^2 + C$$

constant C represents any constants that might have been lost in the derivative process.