

Write the equation of the line tangent to $f(x)$ at the given point:

$$\textcircled{1} f(x) = 3 - 2x^2 \quad \begin{matrix} x_1 & y_1 \\ (-1, 1) \end{matrix}$$

$$f'(x) = 0 - 4x$$

$$f'(x) = -4x$$

$$f'(-1) = -4(-1) \Rightarrow m = 4$$

Point-slope
Form of
a Line \rightarrow

$$y - y_1 = m(x - x_1)$$

$$y - 1 = 4(x + 1)$$

$$y - 1 = 4x + 4$$

$$y = 4x + 5$$

$$\textcircled{2} f(x) = (x-1)(x+2) \text{ at } x=2$$

$$f(2) = (2-1)(2+2) = 4$$

$$(2, 4)$$

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

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

$$f'(x) = 2x + 1$$

$$f'(2) = 2(2) + 1 \Rightarrow m = 5$$

$$y - 4 = 5(x - 2)$$

$$y - 4 = 5x - 10$$

$$y = 5x - 6$$