

$$14. f(x) = \frac{1}{\sqrt[3]{x}} - 3x \quad \text{at } (1, -2)$$

$$\textcircled{1} f(x) = \frac{1}{x^{\frac{1}{3}}} - 3x$$

$$f(x) = x^{-\frac{1}{3}} - 3x$$

$$f'(x) = -\frac{1}{3}x^{-\frac{1}{3}-1} - 3$$
$$= -\frac{1}{3}x^{-\frac{4}{3}} - 3$$

$$f'(x) = \frac{-1}{3x^{\frac{4}{3}}} - 3$$

$$\textcircled{2} m = \frac{-1}{3(1)^{\frac{4}{3}}} - 3$$
$$= \frac{-1}{3} - 3$$

$$m = -\frac{10}{3}$$

$$\textcircled{3} y = mx + b$$

$$-2 = -\frac{10}{3}(1) + b$$

$$-2 = -\frac{10}{3} + b$$

$$-2 + \frac{10}{3} = b$$

$$\frac{4}{3} = b$$

$$\textcircled{4} y = mx + b$$

$$y = -\frac{10}{3}x + \frac{4}{3}$$