

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

$$y = f(x_0) + f'(x_0)(x - x_0)$$

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

$$y = x_0^2 + 2x_0(x - x_0), \quad \text{т.н.}$$

касат. прямой через $T(1; -2)$

$$-2 = x_0^2 + 2x_0(1 - x_0) \Rightarrow$$

$$x_0^2 - 2x_0 - 2 = 0$$

$$D = 4 + 8 = 12$$

$$x_{0_{\pm}} = \frac{2 \pm 2\sqrt{3}}{2} = 1 \pm \sqrt{3}$$