

1. 직선의 방정식

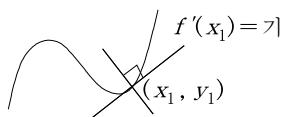
$$\dots \begin{cases} \text{한 점 } (x_1, y_1) \\ \text{기울기 } m = \frac{y_2 - y_1}{x_2 - x_1} = \tan\theta \end{cases}$$

2. 접선 유형

$$\begin{array}{ll} \text{기울기 } : f'(x_1) & \therefore y - y_1 = f'(x_1)(x - x_1) \\ \text{기울기 } = f'(t) = m & y - f(t) = m(x - t) \\ \text{기울기 } = f'(t) = \frac{f(t) - \beta}{t - \alpha} & y - \beta = f'(t)(x - \alpha) \end{array}$$

3. 법선 : 접점에서 접선과 수직인 직선

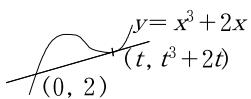
$$y - y_1 = -\frac{1}{f'(x_1)}(x - x_1)$$



예제1

$$\gamma = 3t^2 + 2 = \frac{t^3 + 2t - 2}{t - 0} \quad 3t^3 + 2t = t^3 + 2t - 2$$

$$2t^3 = -2 \quad \dots \quad t = -1$$



예제2

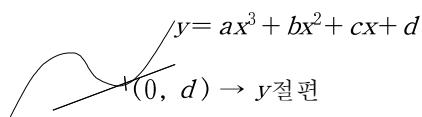
$y = x^3 - 6x^2 + 11x$ 의 기울기가 최소인 접선의 접점

$$\rightarrow y' = 3x^2 - 12x + 11 = 3(x^2 - 4x) + 11$$

$$= 3(x-2)^2 + 11 - 12 = 3(x-2)^2 - 1$$

$$x = 2, \quad y = 8 - 24 + 22 = 6$$

예제3



$$\begin{aligned} y' &= 3ax^2 + 2bx + c & y'|_{x=0} &= c \\ \therefore y - d &= c(x-0) & y &= cx + d \end{aligned}$$

예제4

