

فرمول‌های مشتق‌گیری

مشتق تابع تابع

مثال

$$۱) y = k \Rightarrow y' = 0$$

$$y = 3 \Rightarrow y' = 0$$

$$۲) y = kx \Rightarrow y' = k$$

$$y = 4x \Rightarrow y' = 4$$

$$۳) y = x^n \Rightarrow y' = nx^{n-1}$$

$$y = x^3 \Rightarrow y' = 3x^2$$

$$۴) y = u^n \Rightarrow y' = nu'u^{n-1}$$

$$y = (x^2 + 3x)^4 \Rightarrow y' = 4(2x + 3)(x^2 + 3x)^3$$

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$$۵) y = u \pm v \Rightarrow y' = u' \pm v'$$

$$۶) y = u.v \Rightarrow y' = u'v \pm v'u$$

$$۷) y = \frac{u}{v} \Rightarrow y' = \frac{u'v - v'u}{v^2}$$

$$۸) y = \frac{1}{u} \Rightarrow y' = \frac{-u'}{u^2}$$

مثال

$$y = x^3 - 4x^2 \Rightarrow y' = 3x^2 - 8x$$

$$y = (x^2 + 1)(x^3 + 2x) \Rightarrow$$

$$y' = (2x)(x^3 + 2x) + (3x^2 + 2)(x^2 + 1)$$

$$y = \frac{x^2 + 1}{2x - 3} \Rightarrow y' = \frac{2x(2x - 3) - 2(x^2 + 1)}{(2x - 3)^2}$$

$$y = \frac{1}{x^2 + 2x} \Rightarrow y' = -\frac{(2x + 2)}{(x^2 + 2x)^2}$$