

$$y'' \text{ من } 2xy - 4y + 5 = 0 \quad \text{بين/ اذا علمت ان}$$

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

$$y = \frac{-5}{(2x-4)} \Rightarrow y = -5(2x-4)^{-1}$$

$$y' = 5(2x-4)^{-2} (2) \Rightarrow y' = 10(2x-4)^{-2}$$

$$y'' = -20(2x-4)^{-3} (2) \\ = -40(2x-4)^{-3}$$

جد المشتقة الثانية للدالة التالية (المشتقة الثانية)

$$(2x)(2yy') + y^2(2) - 8yy' + 10x = 0$$

$$4xyy' + 2y^2 - 8yy' + 10x = 0$$

$$(4x)(y'') + 4yy' - 8y'' + 10 = 0$$

$$4xy'' + 4yy' - 8y'' = -10$$

$$y''(4x - 8) = -10 - 4yy'$$

$$y'' = \frac{-10 - 4yy'}{4x - 8}$$

$$y \cdot x = 1$$

$$y = \frac{1}{x}$$

$$y = x^{-1}$$

$$y' = -x^{-2}$$

$$y'' = -2x^{-3}$$

$$y \cdot x = 1$$

$$y(1) + x(y') = 0$$

$$y + x y' = 0$$

$$y' = \frac{-y}{x}$$

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

$$y'' = \frac{-x y' + y}{x^2}$$

$$y'' = \frac{-x \left(\frac{-y}{x}\right) + y}{x^2}$$

$$y'' = \frac{+y + y}{x^2} = \frac{2y}{x^2}$$

$$y'' = \frac{2\left(\frac{1}{x}\right)}{x^2}$$

$$y'' = \frac{2}{x^3}$$

$$y'' = 2x^{-3}$$

انشتقات الدوال المثلثية :

قواعد الدوال المثلثية

① $y = \sin \theta$ زاوية $\Rightarrow y' = \cos \theta$ ~~زاوية~~ \times ~~زاوية~~

② $y = \cos \theta$ زاوية $\Rightarrow y' = -\sin \theta$ ~~زاوية~~ \times ~~زاوية~~

③ $y = \tan \theta$ زاوية $\Rightarrow y' = \sec^2 \theta$ ~~زاوية~~ \times ~~زاوية~~

④ $y = \cot \theta$ زاوية $\Rightarrow y' = -\csc^2 \theta$ ~~زاوية~~ \times ~~زاوية~~

⑤ $y = \sec \theta$ زاوية $\Rightarrow y' = \sec \theta \tan \theta$ ~~زاوية~~ \times ~~زاوية~~

⑥ $y = \csc \theta$ زاوية $\Rightarrow y' = -\csc \theta \cot \theta$ ~~زاوية~~ \times ~~زاوية~~

