

Friday H/W From Friday Quiz 10/30/15
AP Calculus

$$f(x) = \frac{\cos(\ln \sqrt{2x^7})}{2x}$$

$$\frac{d}{dx} \left[\frac{\cos(\ln \sqrt{2x^7})}{2x} \right]$$

$$\frac{2x \frac{d}{dx} [\cos(\ln \sqrt{2x^7})] - \cos(\ln \sqrt{2x^7}) \frac{d}{dx} [2x]}{(2x)^2}$$

$$\frac{d}{dx} [\cos(\ln \sqrt{2x^7})] = [-\sin(\ln \sqrt{2x^7})] \cdot \frac{1}{\sqrt{2x^7}} \cdot \frac{1}{2} (2x)^{-\frac{1}{2}} \cdot 2$$

$$= [-\sin(\ln \sqrt{2x^7})] \cdot \frac{1}{\sqrt{2x^7}} \cdot \frac{1}{2} \cdot \frac{1}{\sqrt{2x^7}} \cdot 2$$

$$= [-\sin(\ln \sqrt{2x^7})] \cdot \frac{1}{2x}$$

$$\therefore \frac{d}{dx} \left[\frac{\cos(\ln \sqrt{2x^7})}{2x} \right] = \frac{2x \left[[-\sin(\ln \sqrt{2x^7})] \cdot \frac{1}{2x} \right] - 2 \cos(\ln \sqrt{2x^7})}{4x^2}$$

$$= - \frac{\sin(\ln \sqrt{2x^7}) + 2 \cos(\ln \sqrt{2x^7})}{4x^2} \rightarrow$$

$$= \frac{d^2 f(x)}{dx^2} \rightarrow$$