Monday September 23

How are peanut M&M's like the chain rule?

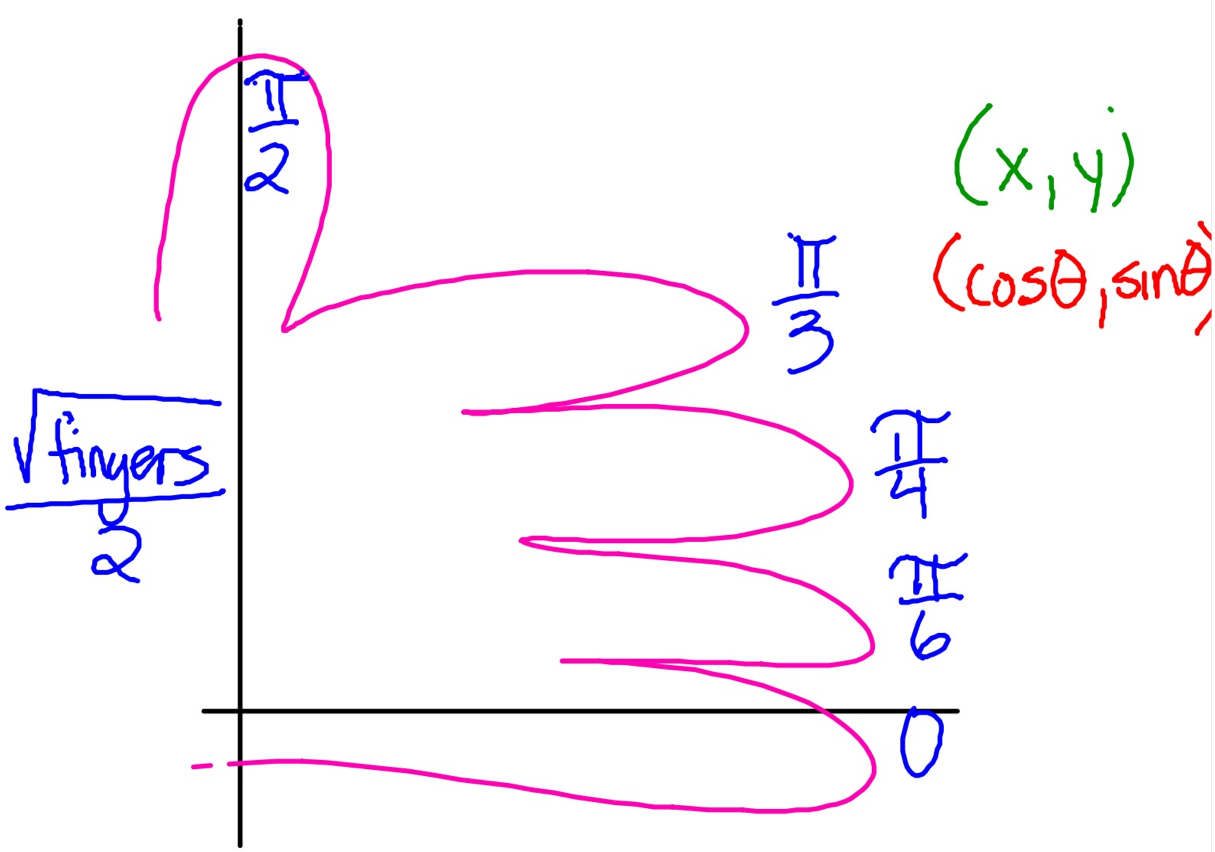
September 23

Students will verbally explain how to find the derivative of a definite integral

(using the words:
chain rule, derivative, function, bound...)

☺ RAM
☺ Properties of Definite Integrals
☺ Evaluating Definite Integrals using areas of basic shapes
☺ Evaluating Definite Integrals using the FTC

Sets 3-6

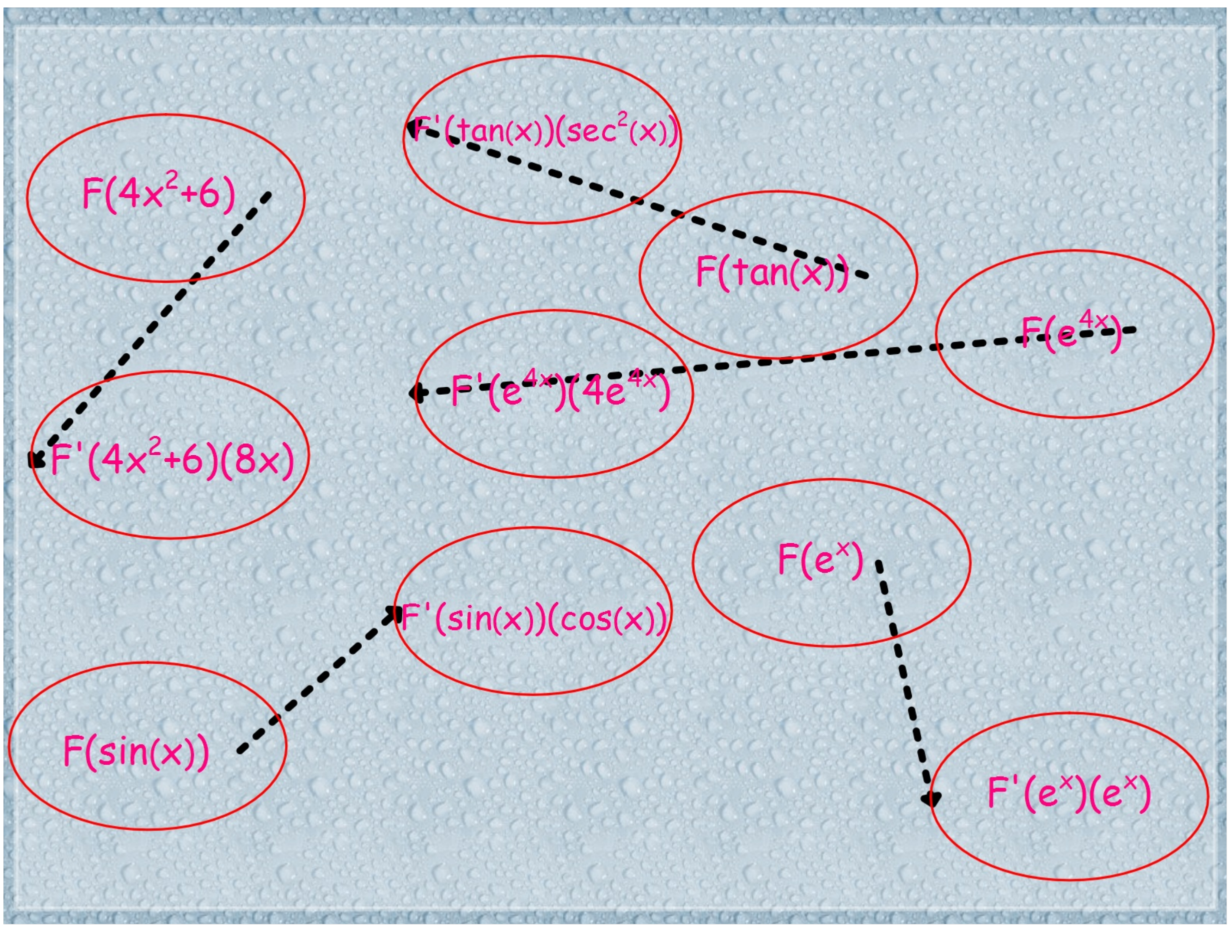


$\sin\left(\frac{11\pi}{6}\right) = -\frac{1}{2}$

S	A
T	C

$\frac{0}{K} = 0$

$\frac{N}{0} = \text{und.}$



$$\frac{d}{dx}\left(\int_4^x e^{t^2+2}\,dt\right)$$

$$\frac{d}{dt}(?) = e^{t^2+2} = F'(t)$$

$$? = F(t)$$

$$\cancel{? = e^{t^2+2}}$$

$$\cancel{\frac{d}{dt}(?) = e^{t^2+2}(2t)}$$

$$\cancel{? = \frac{\left(e^{\frac{t^3}{3}+2t}\right)}{t^2+2}}$$

$$\frac{d}{dt}(?) =$$

$$\frac{d}{dx}\left(\int_4^x e^{t^2+2}\,dt\right)$$

$$= \frac{d}{dx}\left(F(t)\Big|_4^x\right) = \frac{d}{dx}\left(F(x) - F(4)\right)$$

$$= F'(x)(1) - F'(4)(0)$$

$$= F'(x) = e^{x^2+2}$$

$$\frac{d}{dx}\left(\int_6^{x^2} \sin(t^4 - t^3)\,dt\right)$$

$$\frac{d}{dt}(?) = \sin(t^4 - t^3) = F'(t)$$

$$? = F(t)$$

$$\frac{d}{dx}\left(\int_6^{x^2} \sin(t^4 - t^3)\,dt\right)$$

$$= \frac{d}{dx}\left(F(t)\Big|_6^{x^2}\right) = \frac{d}{dx}\left(F(x^2) - F(6)\right)$$

$$= F'(x^2)(2x) - F'(6)(0)$$

$$= F'(x^2)(2x)$$

$$= \sin\left((x^2)^4 - (x^2)^3\right)(2x)$$

$$= \sin\left(x^8 - x^6\right)(2x)$$

$$\frac{d}{dx}\left(\int_{\cos x}^{x^2+x} \sqrt{\tan t - 6t^2}\, dt\right)$$

$$\frac{d}{dx}(?) = \sqrt{\tan t - 6t^2} = F'(t)$$

$$? = F(t)$$

$$\frac{d}{dx}\left(\int_{\cos x}^{x^2+x} \sqrt{\tan t - 6t^2}\, dt\right)$$

$$= \frac{d}{dx}\left(F(x)\Big|_{\cos x}^{x^2+x}\right)$$

$$= \frac{d}{dx}\left(F(x^2+x) - F(\cos x)\right)$$

$$= F'(x^2+x)(2x+1) - F'(\cos x)(-\sin x)$$

$$= \sqrt{\tan(x^2+x) - 6(x^2+x)^2}\,(2x+1) - \sqrt{\tan(\cos x) - 6(\cos x)^2}\,(-\sin x)$$