

Monday, September 23

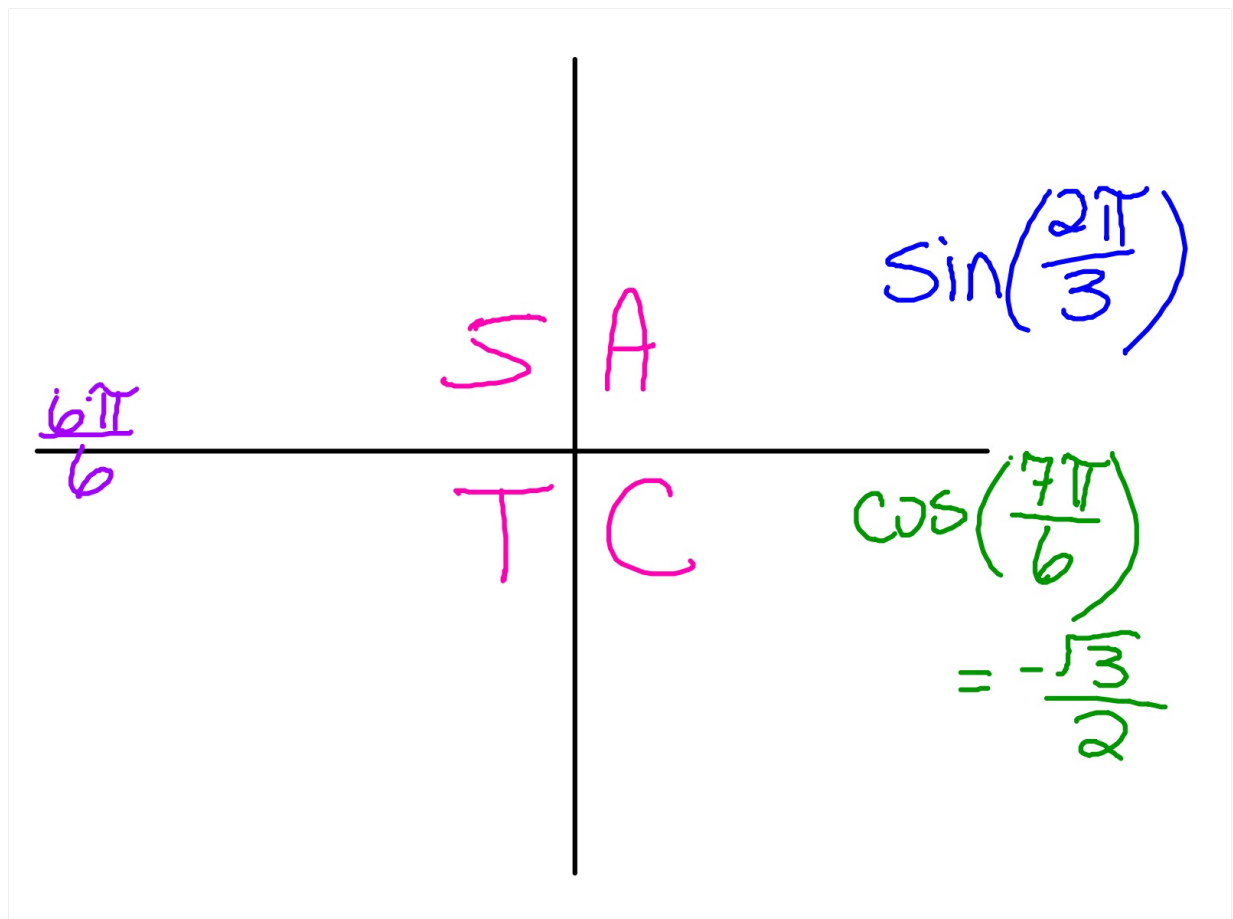
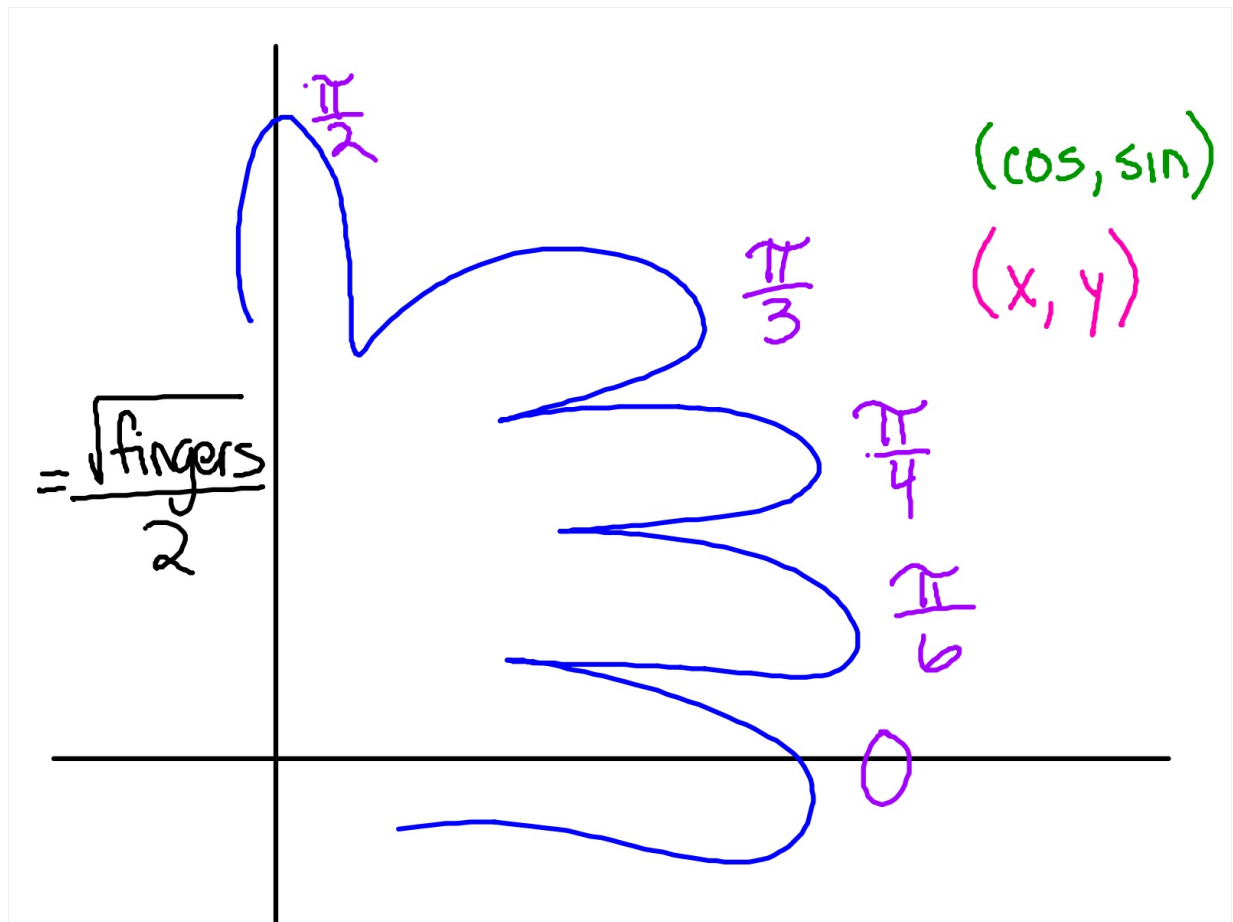
How are peanut M&M's like the  
chain rule?

The background of the slide features a large, faded, light blue version of the Denver Broncos logo, which is a stylized horse head in profile, facing right. The logo is composed of white, orange, and blue elements.

September 19

Students will verbally explain how to  
find the derivative

(using the words:  
function, exponent, coefficient...)



- ☺ Derivatives - Power Rule, Product Rule, Quotient Rule, Chain Rule
- ☺ Definition of the Derivative
- ☺ Equation of a tangent line
- ☺ Limits

### Chain Rule:

The derivative of the outside function  
leaving the inside alone  
times  
the derivative of the inside function.

$$\frac{d}{dx} (f(g(x))) = f'(g(x)) g'(x)$$

$$y = \cos((4x-7)^3)$$

find  $y'$

$$y' = -\sin((4x-7)^3) \cdot 3(4x-7)^2 \cdot (4)$$

derivative of outside:  $\cos(\ )$   
(leaving the inside alone:  $(4x-7)^3$ )

derivative of outside of  $(\ )$

derivative of inside of  $4x-7$

derivative of the inside  $(4x-7)^3$

$$y = \sec(6x^2)$$

find  $y'$

$$\frac{d}{dx}(\sec x) = \sec x \tan x$$

$$y' = \sec(6x^2) \tan(6x^2) (12x)$$

$$f(x) = (10x^3 - 5)^7$$

find  $f'(x)$

$$f'(x) = 7(10x^3 - 5)^6 (30x^2)$$

$$g(x) = \cot^3(14x^2)$$

find  $g'(x)$

$$g(x) = (\cot(14x^2))^3$$

$$g'(x) = 3(\cot(14x^2))^2 (-\csc^2(14x^2)) (28x)$$

$$y = \sin^4(\sqrt{x^3-5})$$

find  $y'$