AP Calc WS#11 Derivative Trig and Inverse Trig Name: \_\_\_\_\_\_

What are the derivative of six Trigonometric and six Inverse Trigonometric functions? Cheatsheet

 Trig Inverse Trig

 (sinx)' = ? (sin-1x)' = ?

 (cosx)' = ? (cos-1x)' = ?

 (tanx)' = ? (tan-1x)' = ?

 (cotanx)' = ? (cotan-1x)' = ?

 (secx)' = ? (sec-1x)' = ?

 (cosecx)' = ? (cosec-1x)' = ?

Find the derivative of the followings

 a. (tan5x)' = ? b. (sec3x)' =? c. (cot11x)' = ?

 d. (tan5 4x)' = ? e. (3cot6 8x)' =? f. (8csc4 5x)' = ?

 g. (x-3cotx) ' = ? h. (secx cscx)'=? i. tan(sin3x) = ?

Find the derivative of the followings

 a. (sin x2)' = ? b. (sin2 x)' =? c. (sin(sinx))' = ?

 d. (cos x2)' = ? e. (cos2 x)' =? f. (cos(cosx))' = ?

Use the identity sin 2x = 2sinxcosx to find the derivative of sin 2x

Find the derivative of

 a. y = x2 sin(x) b. $y=\frac{cos(x)}{1-sin(x)}$

For each derivative below, write the “original” antiderivative function. Remember “ + C”

 a. y ' = cosx y =? b. y' = sin2x y = ?

 c. y' = sec2(3x) y = ? d. y' = csc2 (4x) y = ?

 e. y' = 5secx tanx y = ?

Find the derivative of the followings

 a. (sin-1 4x)' = ? b. (cot-1 x0.5)' =? c. (sec-1 x/3)' = ?

 d. (cos-1 5x2)' = ? b. ((sin-1 x)2)' =? c. (cot-1(cotx))' = ?

a Find an equation for the line tangent to the graph of y = tan x at the point ( π/4, 1)

b. Find an equation for the line tangent to the graph of y = tan-1 x at the point ( 1, π/4)

Let f(x) = cos x + 3x

 a. Find f(0) and f '(0)

 b. Find f-1(1) and (f-1)' (1)

Let y = sin-1x. Show that $\frac{dy}{dx}=\frac{1}{cos(y)}$

 A particle moves along the x-axis so that its position at any time t ≥ 0 is x(t) = $tan^{-1}(\sqrt{t})$

 What is the velocity of the particle when t = 16

Derivative of Inverse Function $\frac{d}{dx}f^{-1}(x)=\frac{1}{f^{'}(f^{-1}(x))}$

Find the derivative of the inverse of f(x) = ½ x – 1 without and with the formula

Now you do

 f(x) = 3x – 4 f(x) = arcsin(x)