Wednesday, February 14, 2018 9:00 AM

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$$\frac{d}{dx}\left(\operatorname{ancsin} x\right) = \frac{1}{\sqrt{1-x^2}}$$
Let $g(x) = \operatorname{ancsin} x$. Find $g'(x)$

$$f(x) = \operatorname{sin} x$$
. $f'(x) = \operatorname{conx} x$

By $I.F.T$.
$$g'(x) = \frac{1}{f'(g(x))} = \frac{1}{\operatorname{con}(\operatorname{ancsin} x)}$$
Let $\operatorname{ancoin} x = \Theta$. $\operatorname{Goal} : \operatorname{con}(\Theta) = ?$

let ancounx =
$$\Theta$$
. Goal: $cos(\theta) = ?$

$$\int \frac{1}{1-x^2} x = \int \frac{1}{1} \sin \theta = \frac{x}{1}$$

$$\int \int \frac{1-x^2}{1-x^2} x = \int \frac{1}{1-x^2} x = \int \frac{1}{1-x^2}$$

Ex. Show that the formular below are true.

$$\frac{1}{dx}\left(ancconx\right) = \frac{-1}{\sqrt{1-x^2}}$$

$$\frac{1}{2} \frac{d}{dx} \left(\arctan x \right) = \frac{1}{1 + x^2}$$

(2) let
$$g(x) = anctanx$$
. Find $g'(x)$?
$$f(x) = tan x. \longrightarrow f'(x) = sec^2 x$$

By IFT.
$$g'(x) = \frac{1}{f'(g(x))}$$

sec2 (anctonx)

Let
$$\Theta = \arctan x$$
. $\tan \Theta = x$

$$\int \frac{1+x^2}{x} \times \sec(\Theta) = \sqrt{1+x^2}$$

$$Aec(\Theta) = \sqrt{1+x^2}$$

$$\frac{d}{dx}\left(ancsinx\right) = \frac{1}{\sqrt{1-x^2}}$$

$$\frac{d}{dx}\left(ancconx\right) = \frac{-1}{\sqrt{1-x^2}}$$

$$\frac{d}{dx}\left(anctanx\right) = \frac{1}{1+x^2}$$

E.x. (1) Find dy

(a)
$$y = \arctan(x^2)$$
. (b) $y = \cot(3x-1)$

(c)
$$y = yc^2 \cdot sin^{-1}(x)$$
.

Television camera is located 2000 ft away from the launching pad of a rochet. x: height of the rochet (changing) x: height of the rochet (changing)

2000 et 6 Find de And el aluate it

when the rochet is 5000 st away from the camera.

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$$\frac{d}{dx} \left(\sqrt{f(x) + g(x)} \right) = \frac{1}{2\sqrt{f(x) + g(x)}} \cdot \left(f'(x) + g'(x) \right)$$