

SI Session: July 14th, 2008
Mondays – Thursdays
12:35 PM – 2:05 PM
Room 1229

Prof. Stockton : Calculus II
Summer II 2008
SI Leader : Neil Jody

[1] Write the following in algebraic form.

(a) $\sec(\tan^{-1}(4x))$

(b) $\cos(\cot^{-1}(x))$

(c) $\sec[\sin^{-1}(x-1)]$

$$(d) \cos\left(\sin^{-1}\left(\frac{x-h}{r}\right)\right)$$

[2] Find the following Derivatives.

$$(a) \frac{d}{dx}\left[y = \sin^{-1} x\right]$$

$$(b) \frac{d}{dx}\left[y = \tan^{-1} x\right]$$

$$(c) \frac{d}{dx}\left[y = \sec^{-1} x\right]$$

$$(d) \frac{d}{dx}\left[y = \cos^{-1}\left(\frac{x+1}{2}\right)\right]$$

$$(e) \frac{d}{dx} \left[y = \frac{1}{\tan^{-1} x} \right]$$

$$(f) \frac{d}{dx} \left[y = x^2 (\sin^{-1} x)^3 \right]$$

$$(g) \frac{d}{dx} \left[y = \csc^{-1}(e^x) \right]$$

$$(h) \frac{d}{dx} \left[y = \sqrt{\cot^{-1} x} \right]$$

$$(i) \frac{d}{dx} \left[y = \ln(\cos^{-1} x)^3 \right]$$

[3] Find the following Indefinite/Definite Integrals.

$$(a) \int \frac{dx}{9 + x^2}$$

$$(b) \int \frac{x^2}{9 + x^2} dx$$

$$(c) \int \frac{dx}{x^2 - 4x + 5}$$

$$(d) \int \frac{4x + 5}{x^2 - 4x + 5} dx$$

$$(e) \int_0^{\pi/2} \frac{\cos x}{1 + \sin^2 x} dx$$

$$(f) \int \frac{e^{2x}}{\sqrt{25 - e^{2x}}} dx$$

$$(g) \int \frac{x + a}{x^2 + a^2} dx$$

$$(h) \int \frac{x + a}{x^2 - a^2} dx$$

$$(i) \int \frac{1}{\sqrt{16-6x-x^2}} dx$$

$$(i) \int \frac{1}{x\sqrt{1-(\ln x)^2}} dx$$