

LECTURE 16: PRACTICE PROBLEMS

(1) Compute $\frac{d}{dx} [\arctan(\arcsin(x))]$.

(2) Compute $\frac{d}{dx} [(1+x^2) \arctan(x)]$.

(3) Compute $\frac{d}{dx} [\arctan(x - \sqrt{1+x^2})]$.

(4) Find $\frac{dy}{dx}$ for the graph $\sqrt{1+x^2y^2} = 2xy$.

(5) Find $\frac{dy}{dx}$ for the graph $e^y = x$ (notice this gives an alternate way to compute $\frac{d}{dx} [\log(x)]$).

(6) Find $\frac{dy}{dx}$ for the graph $\cos(y) = x$ (notice this gives an alternate way to compute $\frac{d}{dx} [\arccos(x)]$).

(7) Find the equation of the line tangent to $y^2 = x^3(2 - x)$ at the point $(1, 1)$.

(8) Show that the sum of the x - and y -intercepts of any tangent to $\sqrt{x} + \sqrt{y} = \sqrt{c}$ is c .