

Instructions: Show Your Work!

(4^{pts}) 1. If $\frac{\pi}{2} < x < \frac{3\pi}{2}$ and

$$y(x) = \int_0^{\sin(x)} \frac{dt}{\sqrt{1-t^2}}.$$

Find $y'(\pi)$.

(6^{pts}) 2. Evaluate the following integrals

(a)

$$\int \sqrt{\frac{x^4}{x^3+1}} dx.$$

(b)

$$\int \frac{e^{\tan^{-1}(x)}}{1+x^2} dx.$$
