

Homework 10

December 6, 2024

1. Find a derivative of $f(x)$

(a) $f(x) = x \sin^{-1} x + \sqrt{1 - x^2}$

(b) $f(x) = \tan^{-1} x + \tan^{-1} \frac{1}{x}$

2. Find an indefinite integral of $f(x)$

(a) $f(x) = \frac{x}{1 + x^4}$

(b) $f(x) = \frac{1}{x^2 \sqrt{1 - x^2}}$

3. Find the area of the region enclosed by the following curves

$$y_1 = -x^2, y_2 = x - 6$$