Homework 10

December 7, 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 $f(x)$

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

$$(b)\ \ f(x) = \frac{1}{\sqrt{4x - x^2}}$$

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

$$y1 = -x^2, y2 = x - 6$$