

Mathematics 110 — Assignment 6

Reading: Lecture Notes Chapter 5

Question 1.

Find the derivatives of the following functions:

(a) $y = 5x^4 + 3x - 1 - x^{-3}$

(b) $y = (x + 1)^{-1/3}$

(c) $y = e^{\sqrt{x+1}}$

(d) $y = e^{3x} \ln x$

(e) $y = \ln(x^2 + \frac{1}{x^2})$

(f) $y = \frac{1+\sin x}{1-\cos x}$

Question 2.

Find the second derivative of $y = e^x \cos x$

Question 3.

Find the third and fourth derivatives the function

$$y = 5x^4 + 3x - 1 - x^{-3}$$

Question 4.

Find the tangent to the curve

$$y = 2x^3 + 3x - 1$$

at the point where $x = 1$.