ASSIGNMENT 12

Trigonometric functions

Quiz:

- $\frac{d}{dx}[\ln x] =$
- $\frac{d}{dx}[\cos x] =$
- $\frac{d}{dx}[e^x] =$
- $\frac{d}{dx}[\sin x] =$

Exercise 12.1. Compute the derivative of the following functions.

(1) $f(x) = \cos(e^x)$

(2) $f(x) = e^x \sin x$

(3) $f(x) = \dfrac{1}{\sin x}$

(4) $f(x) = e^{-3x}\cos(2x)$

(5) $f(x) = \ln(\cos x)$

(6) $f(x) = e^{\sqrt{x}}$

(7) $f(x) = \sin^2 x$

(8) $f(x) = \sqrt{1+\cos^2 x}$

Exercise 12.2. Make a sketch of the graph of each function. Then compute its derivative and make a sketch of the graph of the derivative.

(1) $f(x) = x^2 \sin x$

(2) $g(x) = \dfrac{1}{x^2}\cos x$