

# King Fahd University of Petroleum and Minerals

MATH 101 QUIZ #4 Term 181

Name:

Sec:

ID:

- Q1.** (a) Prove the identity  $\frac{1-\tanh x}{1+\tanh x} = e^{-2x}$   
(b) Find the derivative of  $f(x) = \ln(\cosh x)$ .

- Q2.** Find the absolute maximum and the absolute minimum of  $f(x) = \frac{x}{x^2+1}$  over  $[0,2]$ .

- Q3.** If  $f(1) = 10$  and  $f'(x) \geq 2$  for  $1 \leq x \leq 4$ , how small can  $f(4)$  possibly be ?