King Fahd University of Petroleum and Minerals
Diploma Math Program
Math 004 - Term 033
Quiz#1 (4.2 - 4.4)

Name: ID: Sec.:

Part I: Multiple Choice Questions (10 pts)

Show all steps for full credit

1. Which one of the following statements is FALSE about the graph of $f(x)=\dfrac{e^{-x}+e^{x}}{2}$?

a) the graph is increasing on $(-\infty,\infty)$
b) $(0,1)$ is the lowest point in the graph
c) the graph is symmetric about the $y-$axis
d) the graph has only $y-$ intercept
e) the graph has no $x-$ intercept

2. If x and y are nonzero real numbers, then which one of the following statements is TRUE?

$a)\ \log 10^{(x+y)}=|x+y|$

$b)\ 10^{(\log|x+y|)}=x+y$

$c)\ \log x^2=2\log x$

$d)\ \log\sqrt{x^2+y^2}=\log|x|+\log|y|$

$e)$ Non of the above

3. The expression $(\log_3 64)(\log_4 \sqrt{3}) - (\sqrt[3]{10})^{-3\log 5}$ is equal to

a) $\frac{32}{15}$

b) $\frac{21}{25}$

c) $\frac{12}{13}$

d) $\frac{16}{5}$

e) $\frac{13}{10}$

4. If $\log_c 2 = \frac{2}{3}$, then $\log_8 c =$

a) $\frac{1}{2}$

b) 2

c) 3

d) $\frac{1}{3}$

e) non of the above

5. The range of the function $f(x) = -\left|\log_{\frac{1}{2}} x\right| + 1$ is equal to

a) $(1,\infty)$

b) $(-\infty,1]$

c) $(-\infty,\infty)$

d) $(-\infty,0]$

e) $(0,\infty)$

Part II: Written Part **(10 pts)**

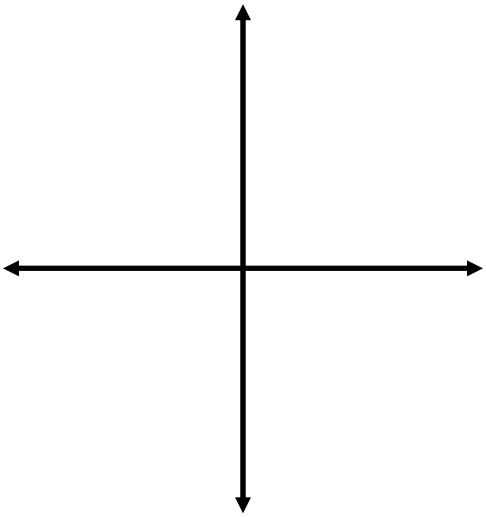
Q3. For the function

$$f(x)=\frac{2^{-x+2}-2}{2}$$

1) sketch the graph of $f(x)$ (**Show the $x-$intercept, the $y-$intercept , and the asymptote(s) on the graph**) **(4pts)**

2) find $f^{-1}(x)$ **(2pts)**

Solution:



Q2. If x and y are any positive real numbers, then write the logarithmic expression $2 - \log_{\frac{1}{3}} x + \log_3(\frac{x}{y})$ as a single logarithm of base 3. **(2pts)**

Q3. If $\ln 2 = x$ and $\ln 6 = y$, then write $\log_9 4$ in terms of x and y. **(2pts)**