

King Fahd University of Petroleum and Minerals  
Diploma Program  
Math 004-Quiz#2A

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Name: \_\_\_\_\_ ID#: \_\_\_\_\_ Sec#: \_\_\_\_\_

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1. Given  $f(x) = \frac{1}{2} + \log_9(x + 3)$ .

(a) Graph  $f(x)$

(b) Find the Domain and the Range of  $f(x)$ .

(c) Find the Asymptote of  $f(x)$ .

(d) Find the x- and y-intercept of  $f(x)$ .

2. Write  $3 \log_2 x - \log_{\sqrt{2}} y + \log_4 z^2$  as a logarithmic function with a base of 2. ( Assume  $x > 0$ ,  $y > 0$ , and  $z > 0$ ).

3. If  $\log 2 = x$  and  $\log 3 = y$ , then write  $\log 75$  in terms of  $x$  and  $y$ .

4. Find the value of  $(\log_5 16) (\log_2 \sqrt{5}) - (\sqrt{e})^{-6 \ln 2}$

5. Solve the following equations:

(a)  $\frac{10^x + 10^{-x}}{2} = 8$

(b)  $1 + \log(3x - 1) = \log(2x + 1)$