King Fahd University of Petroleum and Minerals
Prep-Year Math Program
Math 002 - Term 142
Recitation (4.5)

Question1:

Solve the equation: $\log_3\left[\log_2\left(x^2-1\right)\right] = 1$

Answer: $SS = \{-3,3\}$

Question2:

Solve the following equations:

a) $\log_5\left(x-20\right) - \log_5\left(\dfrac{1}{x}\right) = 3$

b) $9^x - 2\left(3\right)^{x+1} = 27$

c) $2\ln x - \ln 2 = \ln\left(2x + \dfrac{5}{2}\right)$

Answer: (a): $SS = \{25\}$ **(b):** $SS = \{2\}$ **(c):** $SS = \{5\}$

Question3:

The solution of the equation $2^{2x-3} = 5^{1-x}$ is:

     A) $\log_{20} 40$

     B) $\log 2$

     C)   2

     D) $\log_4 8$

     E) $\log_8 20$

Answer: $x = \dfrac{\ln 40}{\ln 20} = \ln_{20} 40$

Question4:

The equation $\log\left(x+4\right) + \log\left(x-5\right) = 1$ has

a)   one negative real solution   b)   two positive real solutions

c)   one positive real solution   d)   no real solution

e)   one positive and one negative real solutions

Answer: (c): one positive real solution: $SS = \{6\}$

Question5:

The sum of all solutions of the equation $e^x + 6e^{-x} - 5 = 0$ is

a) $\ln 6$ b) $\ln\dfrac{3}{2}$ c) 0   d) $\ln 5$ e) $\dfrac{5}{2}$

Answer: $\ln 6$