

**King Fahd University of Petroleum and Minerals**  
**Faculty of Science, Prep-Year Math Program**  
**Math 002 - Term 052**  
**Recitation hour (4.2 & 4.3)**

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**Question1:**

For the function

$$f(x) = -\left(\frac{1}{2}\right)^{-x+2} - 2$$

- 1) sketch the graph of  $f(x)$
- 2) find the  $x$  – intercept and the  $y$  – intercept
- 3) find the range
- 4) find the asymptote(s)
- 5) find the inverse function  $f^{-1}(x)$

**Question2:**

For functions

$$f(x) = -\log_2(3-x)$$

- 1) sketch the graph of  $f(x)$
- 2) find , if any, the  $x$  – intercept and the  $y$  – intercept
- 3) find the domain
- 4) find the asymptote(s)
- 5) find the inverse function  $f^{-1}(x)$

**Question3:**

If the graph of the logarithmic function  $f(x) = \log_b x$  passes through the point  $\left(\frac{1}{64}, -3\right)$ , then find  $f(2)$ .

**Question4:**

If a bacteria population starts with 1000 bacteria and doubles every three hours, then the number of bacteria after  $t$  hours is  $N(t) = 1000 \cdot 2^{t/3}$ .  
When will the population reach 128000?