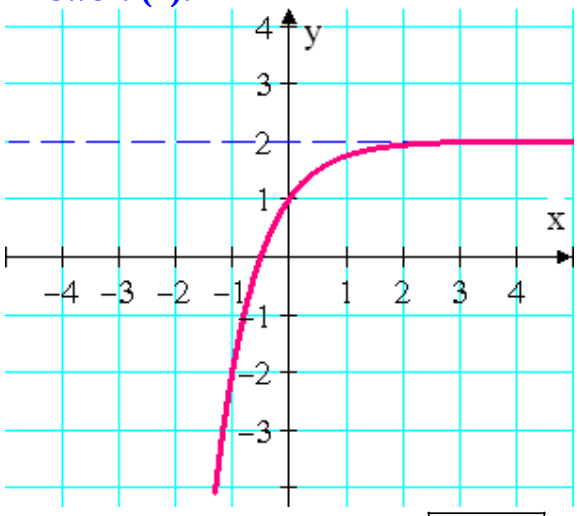
King Fahd University of Petroleum and Minerals
Prep-Year Math Program
Math 002 - Term 142
Recitation (4.2)

Question1 For the function: $f(x) = 2 - \left(\frac{1}{4}\right)^x$

(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)

Answer: (1):



(2): Answer: x-intercept: $\boxed{x = -\frac{1}{2}}$ y-intercept: $\boxed{y = 1}$

(3): $Range = (-\infty, 2)$

(4): $Horizontal\ \ Asymptote: \ \ y = 2$

Question2 If $f(x) = a^x$ and $f(-1) = \frac{1}{2}$, then $f^{-1}(16) =$

a) $\frac{1}{4}$ b) 4 c) 2 d) 8 e) -2

Answer: Therefore $f^{-1}(16) = 4$

Question3

The graph of $f(x) = \left(\sqrt{2}\right)^{2x-4} + b$ with horizontal asymptote $y = -8$ has x-intercept =

a) 5 b) 3 c) 4 d) -1 e) $-\frac{31}{4}$

Answer: x-intercept: $\boxed{x = 5}$

Question4

The adjacent figure represents the graph of:

a) $f(x)=-\left(\frac{1}{3}\right)^{x-1}-1$

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

c) $f(x)=-\left(\frac{1}{3}\right)^{x+1}-1$

d) $f(x)=-\left(\frac{1}{3}\right)^{x+1}+1$

e) $f(x)=\left(\frac{1}{3}\right)^{x+1}-1$