King Fahd University of Petroleum and Minerals
Prep-Year Math Program
Math 001 - Term 131
Recitation (3.5)

Question 1: Which one of the following functions has the graph given below?

$a) f(x) = \dfrac{2-x}{3-x}$

$b) f(x) = \dfrac{2-3x}{4-x}$

$c) f(x) = \dfrac{x-2}{4-x}$

$d) f(x) = \dfrac{6-3x}{4-x}$

$e) f(x) = \dfrac{3x-12}{4x-16}$
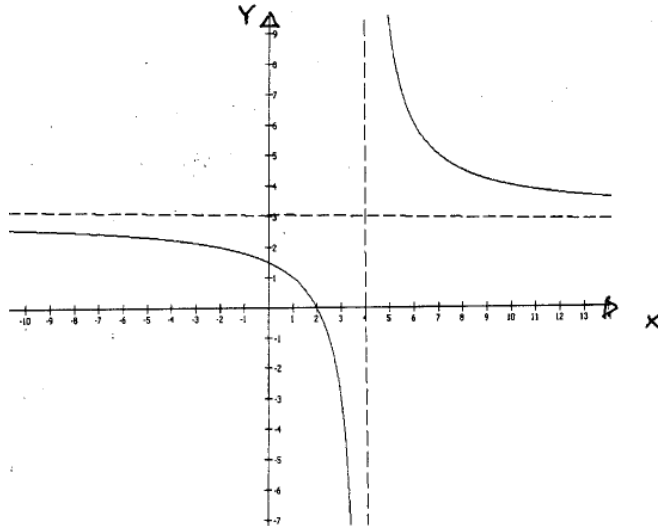
Solution:

(a): False because it has horizontal asymptote: $y = 1$

(b): False because it has x-intercept: $x = \dfrac{2}{3}$

(c): False because it has horizontal asymptote: $y = -1$

(d): Correct **Answer:** $d)\quad f(x) = \dfrac{6-3x}{4-x}$

(e): False because it has x-intercept: $x = 4$

Question 2: If $y = 3$ is the horizontal asymptote of $y = \dfrac{Ax+3}{1-2x}$, then the x-intercept of the graph is:

A) $\dfrac{3}{2}$ B) -3 C) $-\dfrac{2}{3}$ D) $\dfrac{1}{2}$ E) -2

Solution:

The horizontal asymptote of $F(x)$ is : $y = \dfrac{A}{-2}$, $y = 3 \Rightarrow \dfrac{A}{3} = 2 \Rightarrow \boxed{A = -6}$

We need to find the x-intercept of $y = \dfrac{-6x+3}{1-2x}$

$0 = \dfrac{-6x+3}{1-2x} \Rightarrow x = \dfrac{1}{2}$ but it is rejected because the function is undefined for $x = \dfrac{1}{2}$