King Fahd University of Petroleum and Minerals
Prep-Year Math Program
Math (001)-Term (181)
Recitation (2.5)

Question 1: Determine which function is linear

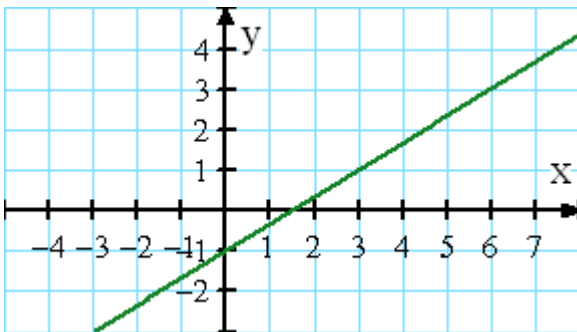(a) $f(x) = \dfrac{2x-3}{x}$

(b) $f(x) = \sqrt{x} - 1$

(c) $f(x) = (x+1)^2$

(d) $f(x) = \dfrac{1}{3}x + \dfrac{2}{3}$

(e) $f(x) = x(4-x)$

Answer: (d): $f(x) = \dfrac{1}{3}x + \dfrac{2}{3}$ is a linear function with slope $\dfrac{1}{3}$
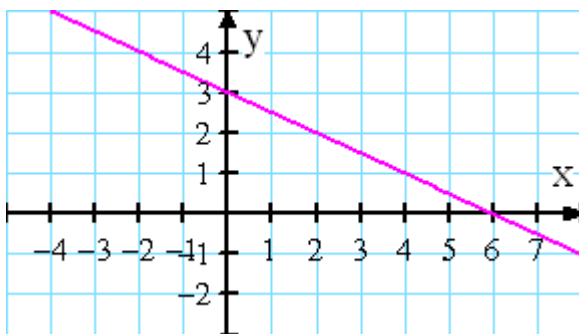
Question 2: Sketch the graph and find the slope of the linear function.

$$f(r) = \frac{2}{3}r - 1$$

Answer: $slope = \dfrac{2}{3}$

Question 3: From the graph, find the rate of the change of the linear function and express it in the

form of $f(x) = ax + b$ (The slope y-intercept form)

Answer: the rate of the change $= slope = \dfrac{3-0}{0-6} = -\dfrac{1}{2}$ $f(x) = -\dfrac{1}{2}x + 3$

Question 4: Let $f(x)$ be a linear function such that $f(0) = -3$ and the graph of $f(x)$ is perpendicular to the line $x + 2y = 3$. Find $f(-3)$

Answer: $f(-3) = 2(-3) - 3 = -9$

Question 5: If f is a linear function such that $f(0) = k - 1$, $f(2) = k - 2$, and $f(6) = 1 - k$, then find the value of k.

Answer: $k = \dfrac{5}{2}$