

1

2

$$I \cap II = \left(\frac{1}{k}, +\infty \right)$$

$$I \cup II = (-\infty, -\frac{1}{p}) \cup (-\frac{1}{p}, \frac{1}{p})$$

$$|x - \frac{1}{p}| < \frac{\delta}{p} \rightarrow \alpha = \frac{1}{p} \quad \beta = \frac{\delta}{p}$$

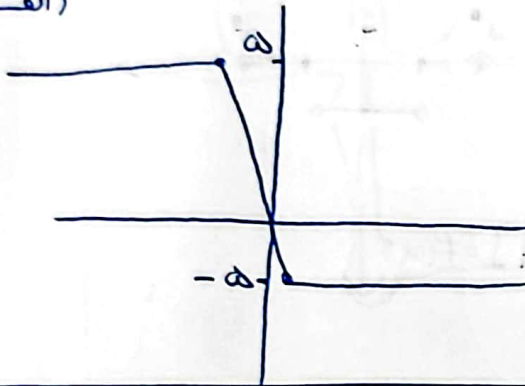


$$|\frac{1}{p}x+k|-1=y \rightarrow |\frac{1}{p}x|-1 = |\frac{1}{p}x+k|-1 \rightarrow |\frac{1}{p}x|-1 = |\frac{1}{p}x+k| \quad 5$$

$$\frac{1}{p}x-1 = \frac{1}{p}x+k \rightarrow -1 \neq k \notin \mathbb{R}$$

$$-\frac{1}{p}x-1 = \frac{1}{p}x+k \rightarrow x = -\omega$$

الف)



$$\xrightarrow{\text{المرتبة}} R_f = \{-\omega, -k, -k, \dots, k, k, \omega\}$$

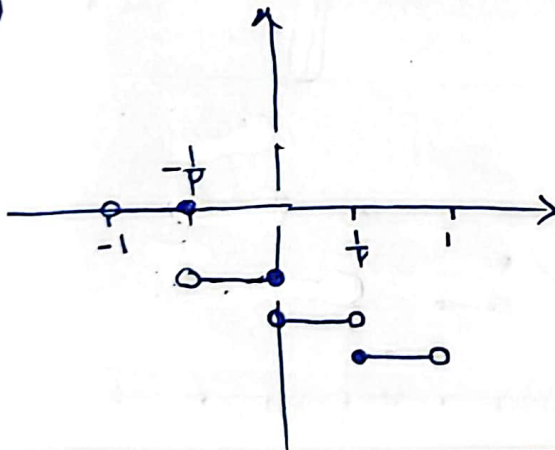
$\downarrow$
 $-2, -1, \dots, 1, 2$

6

$$\text{ب) } \frac{1}{x} - [1 + \frac{1}{x}] \rightarrow \frac{1}{x} - [\frac{1}{x}] - 1 = y \rightarrow -1 \leq \frac{1}{x} - [\frac{1}{x}] < 1 \rightarrow$$

$$-1 \leq \frac{1}{x} - [\frac{1}{x}] + 1 < \dots \rightarrow [-1, 1) = R_f$$

الف)

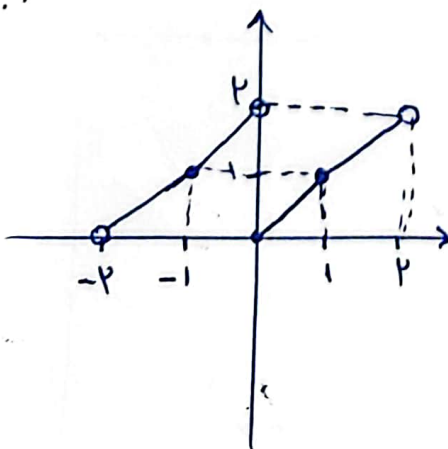


$$(-1, 0) \rightarrow x+2-1=1$$

$$[0, 1) \rightarrow -1$$

7

ب)



$$(-2, -1) \rightarrow x+2$$

$$[-1, 0) \rightarrow x+2$$

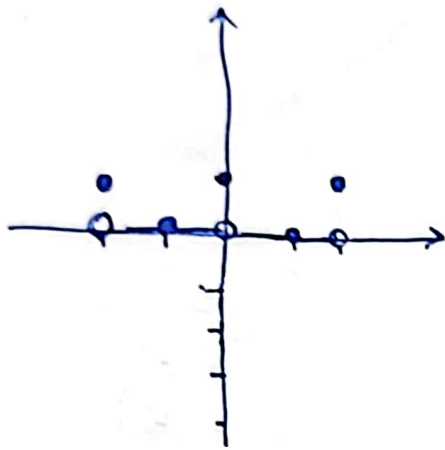
$$[0, 1) \rightarrow x$$

$$[1, 2) \rightarrow x$$

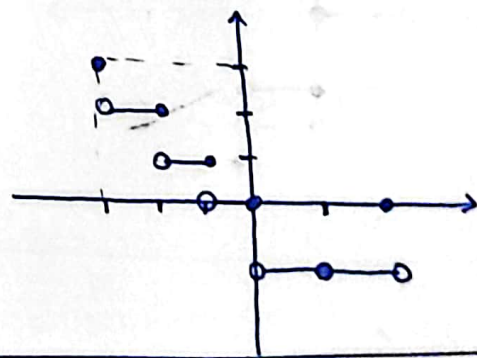
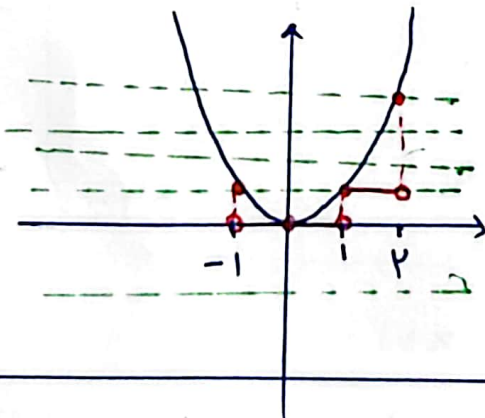
$$[x-1] = f(x)$$

$$[-1, 1]$$

8



$$y = x^2 - 1$$



$$b - [a] = 1/4 \rightarrow .14$$

$$a = 1/4$$

$$b = 1/4$$

$$\rightarrow a + b = 1/2$$

9

$$(1+\sqrt{P})^9 = 19\lambda - (1-\sqrt{P})^9 \Rightarrow 19\lambda - [(1-\sqrt{P})^9]^{10} = 19\lambda - [10 - 10\sqrt{P}]^{10}$$

$$19\lambda - [10 + 10\sqrt{P} - 10\sqrt{P} - 10\sqrt{P}] = 19\lambda - [10 - 10\sqrt{P}] \Rightarrow$$

10

$$19\lambda - 10 + 10\sqrt{P} = 19\lambda - 10 \Rightarrow [10\sqrt{P}/10] = 10\sqrt{P}$$