

Date:

Sub:

لبنان ابراهيم نازكهم كبريا وقتي

$$\frac{1}{x-1} = |x-1|$$

$$\frac{1}{x-1} = -x+1 \quad \frac{1}{x-1} = x-1$$

$$-x^2 + 2x - 1 = 1 \quad x^2 - 2x + 1 = 1$$

$$-x^2 + 2x - 2 = 0 \quad x^2 - 2x = 0$$

$$\Delta < 0 \quad x = 0 \text{ X } \text{GOE}$$

$$\Delta < 0 \quad x = 2 \checkmark$$

$$|2x-1| < 1$$

$$|x-2| > 1$$

$$|2x-1| < 1 \Rightarrow 1 < 2x-1 < 1$$

$$|x-2| > 1 \Rightarrow x-2 > 1 \text{ or } x-2 < -1$$

$$(2x-1)^2 < 1$$

$$(x-2)^2 > 1$$

$$4x^2 - 4x + 1 < 1$$

$$x^2 - 4x + 4 > 1$$

$$-4x < 0$$

$$x^2 - 4x + 3 < 0 \quad x = -3$$

$$x = \frac{1}{3}$$

$$x > \frac{1}{3}, x \neq 0$$

$$x+1 \neq 0 \Rightarrow x \neq -1$$

$$\left(\frac{1}{3}, +\infty\right)$$

$$(-1, -\frac{1}{3}) \cup (-\frac{1}{3}, \frac{1}{3})$$

$$x+4 > x^2 \rightarrow x^2 - x - 4 < 0 \rightarrow x = 3$$

$$x = -2$$

$$\frac{-1}{+b-b} +$$

$$\Rightarrow (-2, 3)$$

$$x+4 < -x^2 \rightarrow x^2 + x + 4 < 0 \rightarrow \Delta < 0 \Rightarrow \text{no solution}$$

$$-\frac{1}{p} < x - \frac{1}{p} < \frac{1}{p} \Rightarrow |x - \frac{1}{p}| < \frac{1}{p} \Rightarrow x = \frac{1}{p}$$

Date:

Sub:

$$x < -1 \rightarrow y = -(x+1) + 1x - (x-1) = 1$$

$$x = -1 \rightarrow y = -1 + 1 = 0$$

$$-1 < x < 0 \rightarrow y = (x+1) + 1x - (x-1) = 1x + 1 \quad x = 0$$

$$\rightarrow y = 1 + 1 = 2$$

$$0 < x < 1 \rightarrow y = (x+1) - 1x - (x-1) = -1x + 1 \quad x = 1$$

$$\rightarrow y = 1 - 1 = 0$$

$$x > 1 \rightarrow y = (x+1) - 1x + (x-1) = x - 1$$

$$\max x + \min = 1 - 1 = 0$$

$$y = \left| \frac{x}{1} \right| - 1 \rightarrow y = \left| \frac{x+1}{1} \right| - 1 + 1 = \left| \frac{x+1}{1} \right| - 1$$

$$\Rightarrow \left| \frac{x}{1} \right| - 1 = \left| \frac{x+1}{1} \right| - 1$$

$$\left| \frac{x}{1} \right| = \left| \frac{x+1}{1} \right| + 1 \rightarrow |x| = |x+1| + 1$$

$$x < 0 \rightarrow x = x + 1 + 1 = 0 = 0 \quad x$$

$$-1 < x < 0 \rightarrow -x = x + 1 + 1 \rightarrow x = -1$$

$$x < -1 \rightarrow -x = (x+1) + 1 \rightarrow 0 = -1 \quad x$$

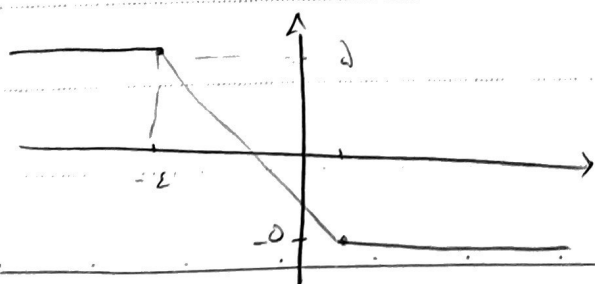
$$\text{hier das } x = -1$$

$$\text{1.) } f(x) = [1 - |x| - |x+1|]$$

$$1 - |x| - |x+1| = 0$$

$$\begin{array}{c} -1 \quad 0 \quad 1 \\ 1 - x + x + 1 \quad 1 - x - x \quad x - 1 - x - 1 \\ -2 \quad -2x \quad -2 \end{array}$$

$$\begin{array}{c|ccc} x & 1 & -1 & 0 & 1 \\ \hline y & 0 & 0 & 0 & -2 \end{array}$$



$$\Rightarrow R_1 = \{-2, -1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100\}$$

Date:

Sub:

$$b) f(x) = \frac{1}{x} - \left[\frac{x+1}{x} \right]$$

$$\frac{1}{x} - \left[1 + \frac{1}{x} \right] \Rightarrow \frac{1}{x} - \underbrace{\left[\frac{1}{x} \right]}_{[0,1]} - 1 \quad R = [-1, 0)$$

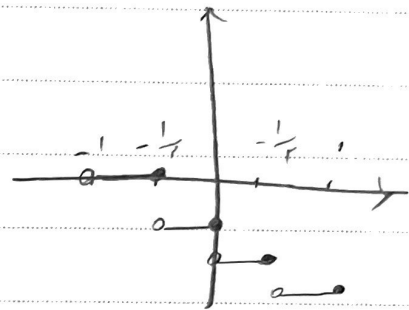
$$\text{اذا } y = [-2x] - 1 \quad x \in (-1, 1)$$

$$-1 < x < -\frac{1}{2} \rightarrow y = 1 - 1 = 0$$

$$-\frac{1}{2} < x \leq 0 \rightarrow y = 0 - 1 = -1$$

$$0 < x \leq \frac{1}{2} \rightarrow y = -1 - 1 = -2$$

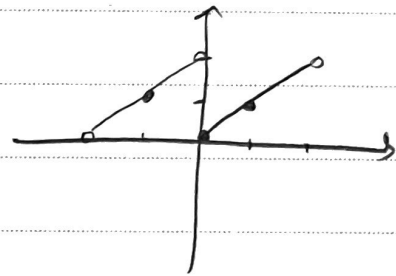
$$\frac{1}{2} < x < 1 \rightarrow y = -2 - 1 = -3$$



$$c) y = x - 2 \left[\frac{x}{2} \right] \quad x \in (-2, 2)$$

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

$$0 \leq x < 2 \rightarrow y = x - 2(0) = x$$



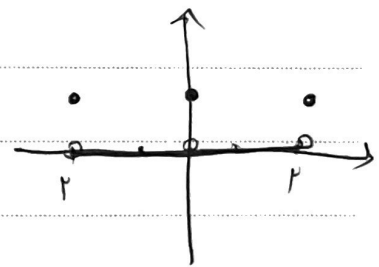
$$\text{د) } y = [|x| - 1] \quad x \in [-2, 2]$$

$$x = -2 \rightarrow y = 1 \quad 0 < x \leq 1 \rightarrow y = 0$$

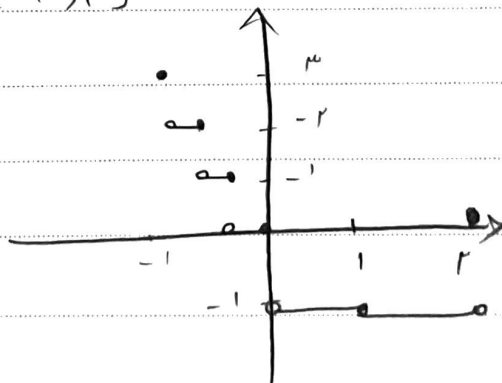
$$-2 < x \leq -1 \rightarrow y = 0 \quad 1 \leq x < 2 \rightarrow y = 0$$

$$-1 < x < 0 \rightarrow y = 0 \quad x = 2 \rightarrow y = 1$$

$$x = 0 \rightarrow y = 1$$



$$e) y = [x^2 - 2x] \quad x \in [-1, 2]$$



Date:

Sub:

$$a + (b - 0, 1) = 1, 2$$

$$b - [a] = 1, 2$$

$$b - (a - 0, 1) = 1, 2$$

$$a - [b] = 1, 2$$

$$a + b = 1, 2 + 1, 2 = 2, 4$$

$$\Rightarrow 2b = 4, 4 + 0, 1 = 4, 1$$

$$b = 2, 05$$

$$a = 1, 1$$

$$(1 + \sqrt{r})^4 + (1 - \sqrt{r})^4 = 191$$

$$(1 + \sqrt{r})^4 = 191 - (1 - \sqrt{r})^4 \Rightarrow -1 < 1 - \sqrt{r} < 0$$

$$\rightarrow 0 < (1 - \sqrt{r})^4$$

$$[(1 + \sqrt{r})^4] = [191 - 0, -] = 191$$