

مسئله ۲۰: فرض کنید A یک مجموعه است. $\mathcal{P}(A)$ را بنویسید.

$$\frac{1}{2-1} \leq \frac{1}{2-1} \rightarrow \frac{1}{2-1} \leq \frac{1}{2-1} \rightarrow 2^2 - 2 \leq 0 \rightarrow 2 \leq 0 \quad \times \quad (1)$$

فرض کنید $2 \leq 2$.

$$\frac{2 \leq 1}{+} \rightarrow \frac{1}{2-1} \leq 2-1 \rightarrow 2^2 - 2 \leq 1 \rightarrow 2 \leq 1 \quad \times$$

الف)

$$\frac{1}{2} \leq \frac{1}{2} \rightarrow -1 \leq \frac{1}{2} \leq 1 \quad (1) \rightarrow 2-1 \leq 2 \rightarrow 2 \leq 1/2 \quad \times$$

$$(2) \rightarrow 2-1 \leq 2 \rightarrow \mathbb{R} - \{0\} \rightarrow \text{مؤلفه} = (1/2, +\infty)$$

ب)

$$\frac{2-2}{2+1} \leq 1 \rightarrow \frac{2-2}{2+1} \leq 1 \rightarrow \frac{2-2-2+1}{2+1} \leq \frac{-2-2}{2+1} \rightarrow \frac{-4}{3} \leq -1/2$$

$$(1): \frac{2-2}{2+1} \leq 1 \rightarrow \frac{2-2+2+1}{2+1} \leq 0 \rightarrow \frac{2-1}{2+1} \leq \frac{-1/2}{+} \quad (2)$$

$$(1) \cap (2) \leq \emptyset \quad \text{مؤلفه}$$

$$2^2 \leq 1 \rightarrow 2 \leq 1 \rightarrow 2^2 \leq 2 \rightarrow 2^2 - 2 \leq 0 \rightarrow \frac{-2}{+} \leq \frac{1}{+} \quad (1)$$

$$(2): 2 \leq 1 \rightarrow 2^2 \leq 2 \rightarrow 2^2 + 2 \leq 0 \rightarrow \Delta \leq 0 \quad \text{مؤلفه}$$

$$|2-1| \leq \beta \rightarrow -\beta \leq 2-1 \leq \beta \rightarrow \underbrace{-\beta+1}_{-2} \leq 2 \leq \underbrace{1+\beta}_{2}$$

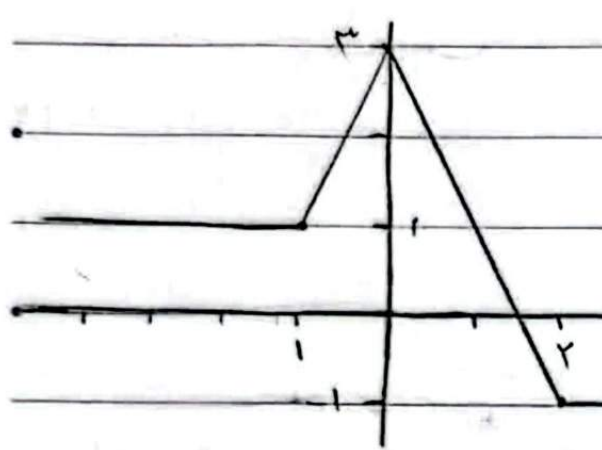
$$\frac{1+\beta \leq 2}{+} \rightarrow \frac{1-\beta \leq -1}{+}$$

$$2 \leq 1 \Rightarrow 2 \leq 1/2$$

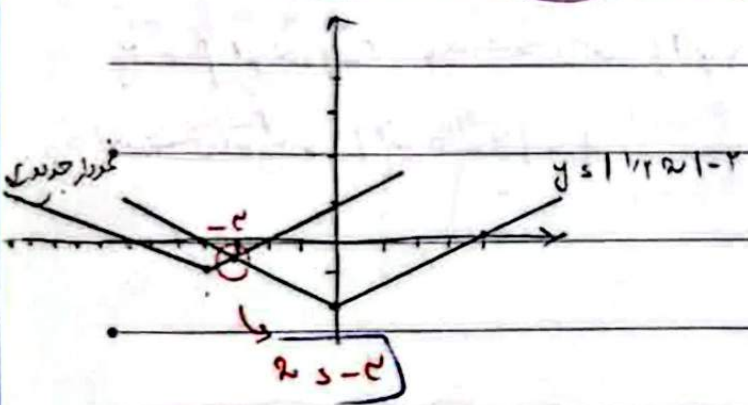
$y = |2x+1| - |2x| + |2x-1|$ ؟

۱۲.

-1	0	1
$-2x-1-2x-2$	$2x+1-2x-2$	$2x+1-2x-2$
$-4x-3$	-1	-1



→ $[1, 2]$ و 3 و 2 و 1 و 0 و -1 و -2 و -3



۱۵.

۱۶. $y = [|1-x| - |2x+1|]$ → $|1-x| - |2x+1|$

-1	0	1
$1-x-2x-1$	$1-x-2x-1$	$1-x-2x-1$
$-3x$	$-3x$	$-3x$

برای $x \in [-1, 1]$: $y = [|1-x| - |2x+1|]$: $y = 1-x-2x-1 = -3x$ و $y = 1-x-2x-1 = -3x$ و $y = 1-x-2x-1 = -3x$

۱۷. $\frac{1}{2} [\frac{2x+1}{2}] = \frac{1}{2} - [1 + \frac{1}{2}] = \frac{1}{2} - [\frac{3}{2}] + 1 = 0$ $P_f = [1, 2]$





Year:

Month:

Day:

| |

Subject:



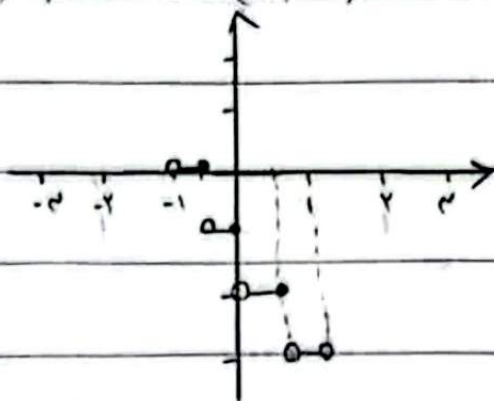
$$\text{الف) } y \in [-2, 2] - 1 \quad 2 \in (-1, 1) \Rightarrow -2 \in (-2, 2) \quad (v)$$

$$-2 < -2 < -1 \rightarrow -2 \rightarrow y \in -2$$

$$-1 < -2 < 0 \rightarrow -1 \rightarrow y \in -2$$

$$0 < -2 < 1 \rightarrow 0 \rightarrow y \in -1$$

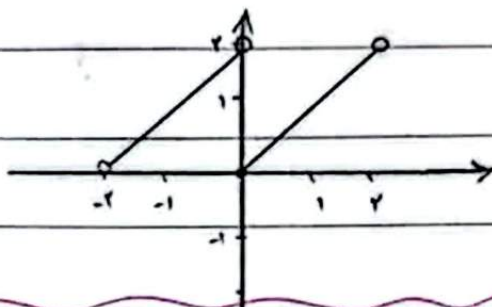
$$1 < -2 < 2 \rightarrow 1 \rightarrow y \in 0$$



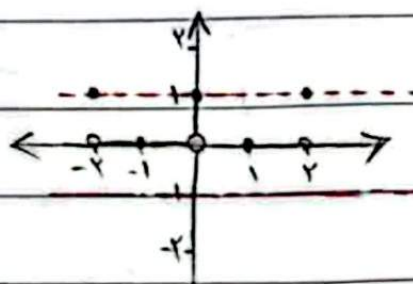
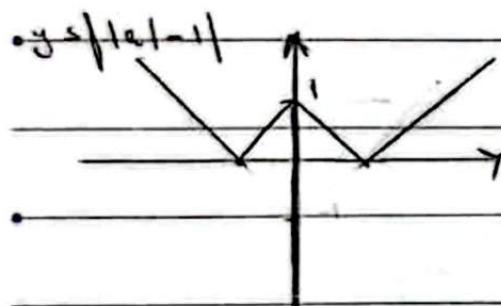
$$\text{ب) } y \in 2 - 2 \left[\frac{x}{2} \right] \quad 2 \in (-2, 2) \Rightarrow \left[\frac{x}{2} \right] \in (-1, 1)$$

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

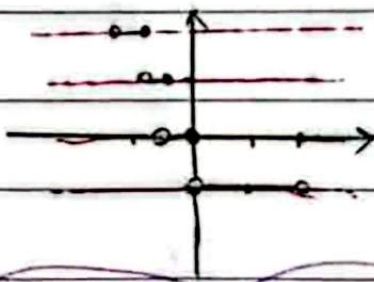
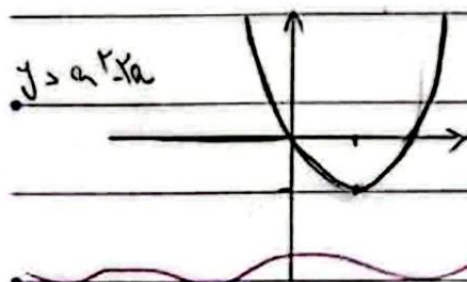
$$0 < \frac{x}{2} < 1 \rightarrow 0 \rightarrow y \in 2$$



$$\text{الف) } y \in [|x| - 1] \quad 2 \in [-2, 2] \quad (v)$$



$$\text{ب) } y \in [x^2 - 2x] \quad 2 \in [-1, 2]$$



$$a + [b] \in (-2, 2) \Rightarrow a \text{ مثبت اعظمی} \quad 2 \Rightarrow [a] + [b] \in (-2, 2) \quad (v)$$

$$b - [a] \in (-2, 2) \Rightarrow b \text{ مثبت اعظمی} \quad 2 \Rightarrow [b] - [a] \in (-2, 2)$$



*

$$2[b] \in (-2, 2) \Rightarrow [b] \in (-1, 1) \Rightarrow b \in (-2, 2)$$

$$\rightarrow a + b \in (-2, 2) \quad c, d \in (-2, 2)$$

$$\rightarrow [a] \in (-1, 1) \Rightarrow a \in (-2, 2)$$



Year:

Month:

Day:

| |

Subject:



$$(1+\sqrt{2})^4 + (1-\sqrt{2})^4 = 198 \Rightarrow (1+\sqrt{2})^4 \leq 198 - (1-\sqrt{2})^4 \quad (10)$$

$$(1-\sqrt{2})^4 \in (0, 1) \leftarrow 1-\sqrt{2} \in (-1, 0) \text{ : من ١ ناقص *}$$

$$\Rightarrow [(1+\sqrt{2})^4] \leq [198 - (1-\sqrt{2})^4] \Rightarrow [(1+\sqrt{2})^4] \leq 195 \quad \checkmark$$

$$\lambda \in (195, 198)$$