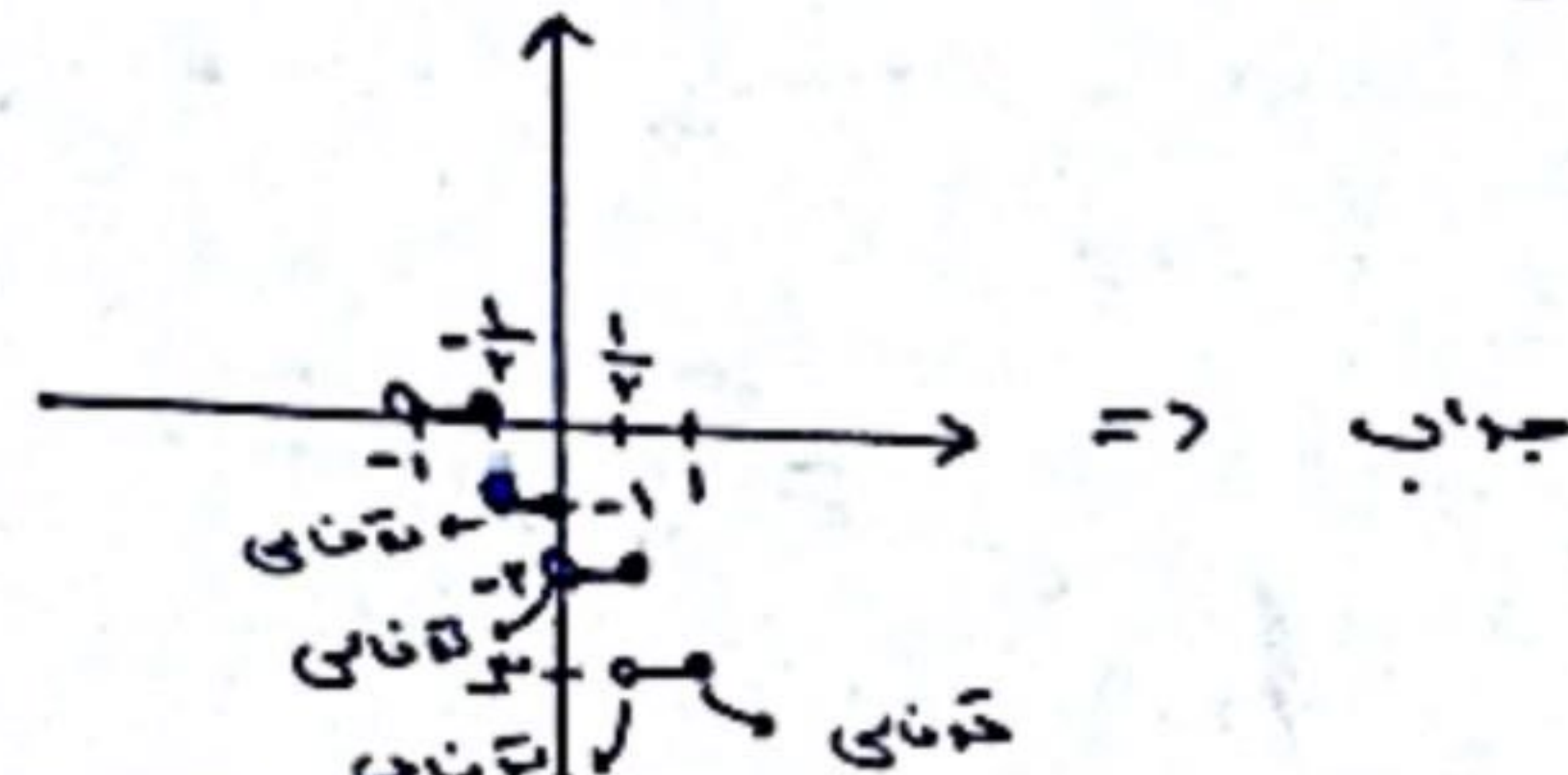
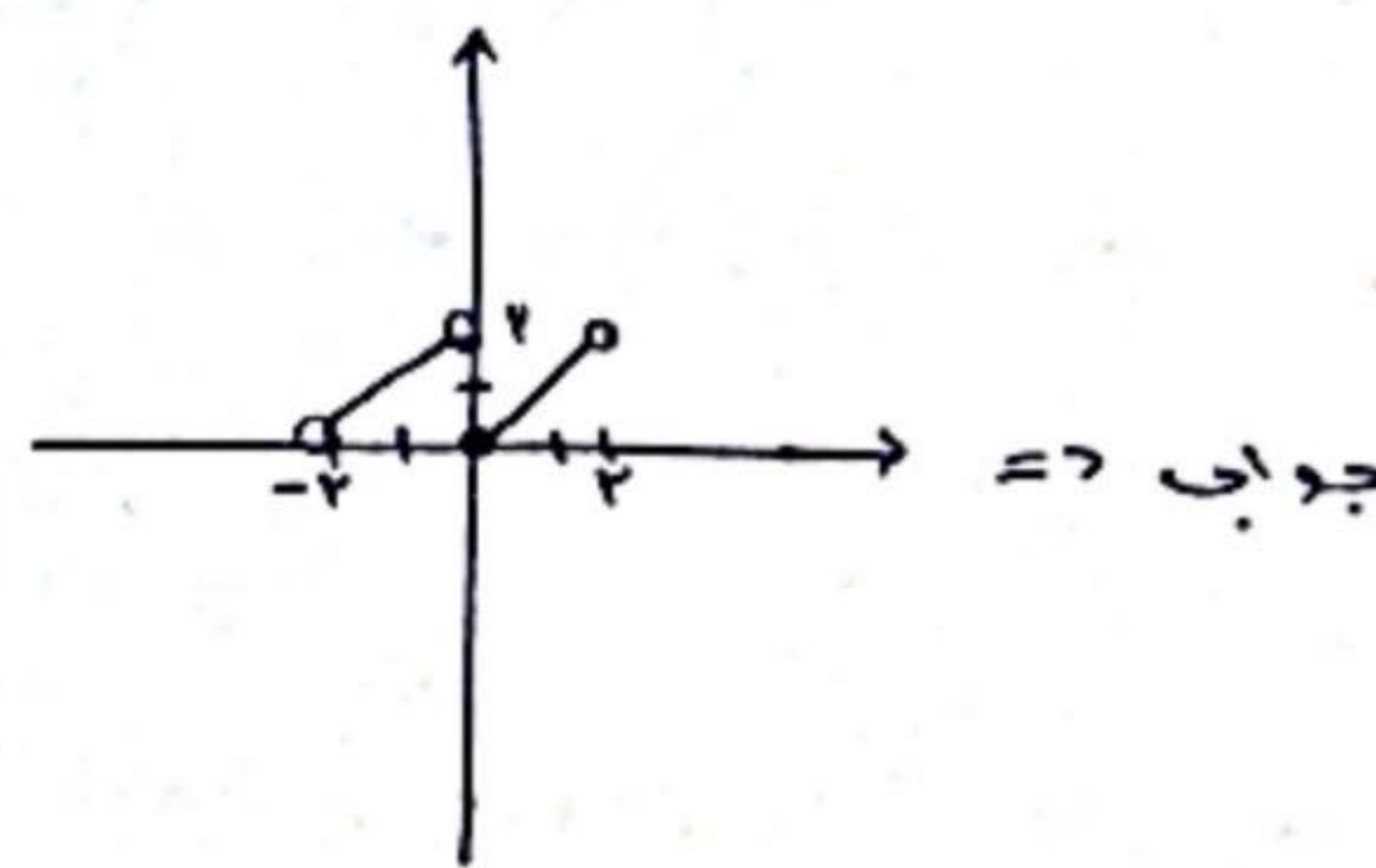
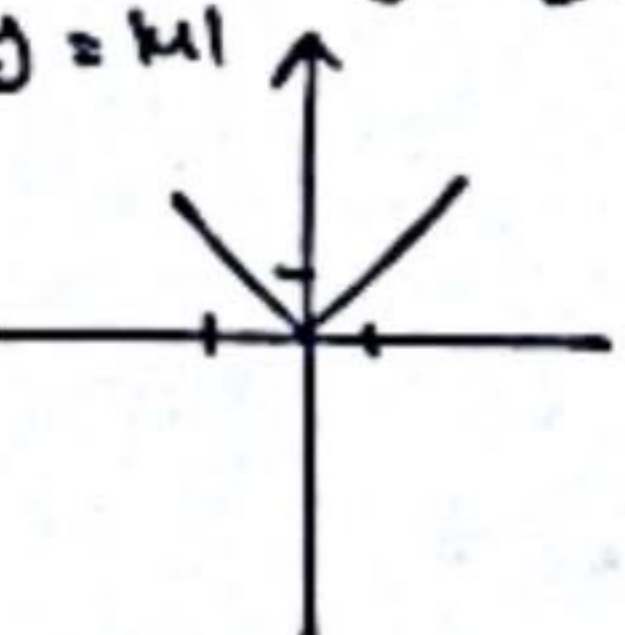
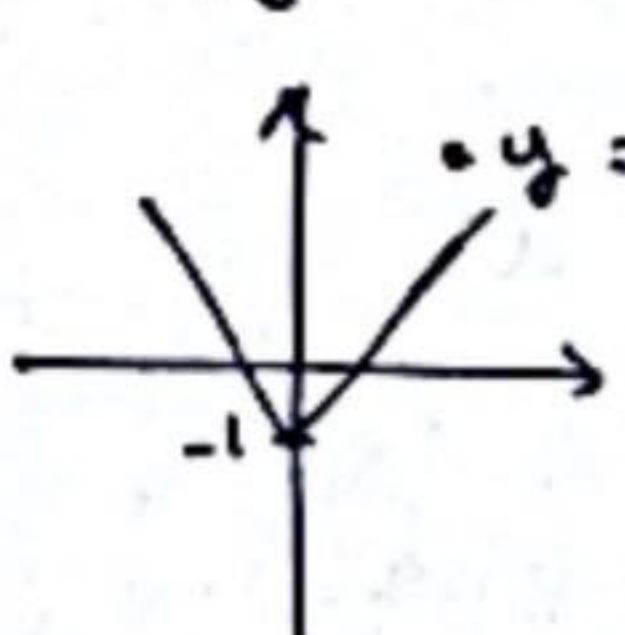
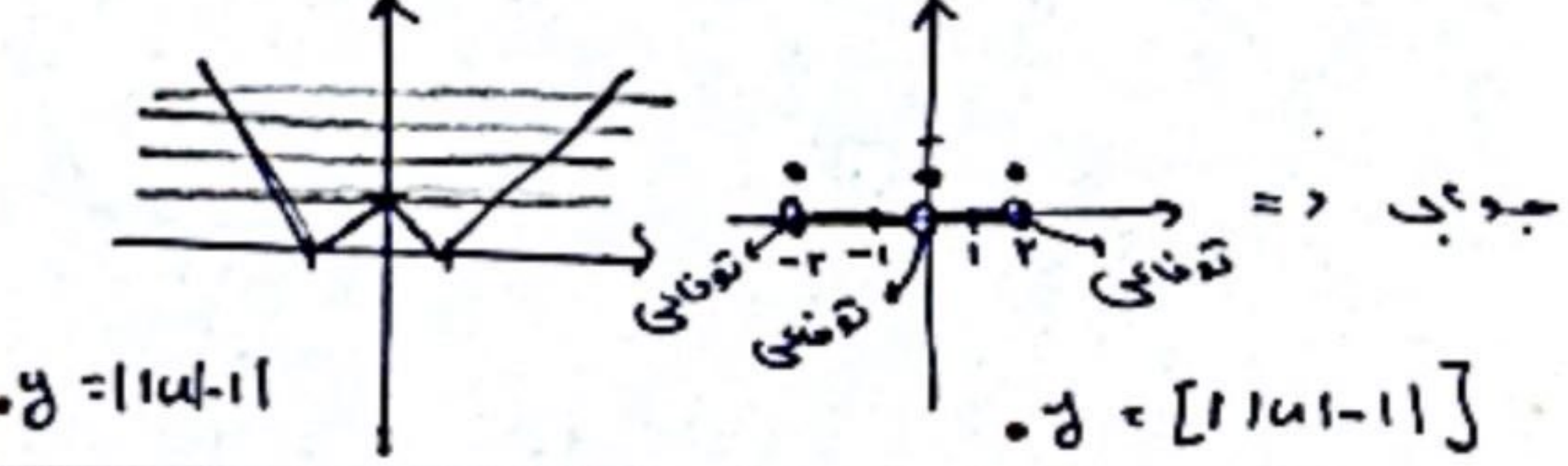
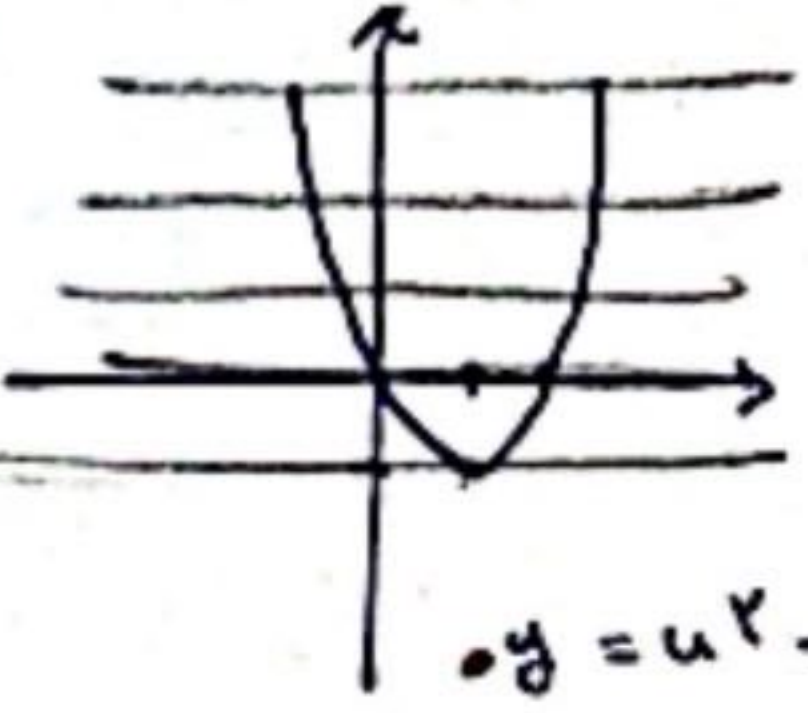
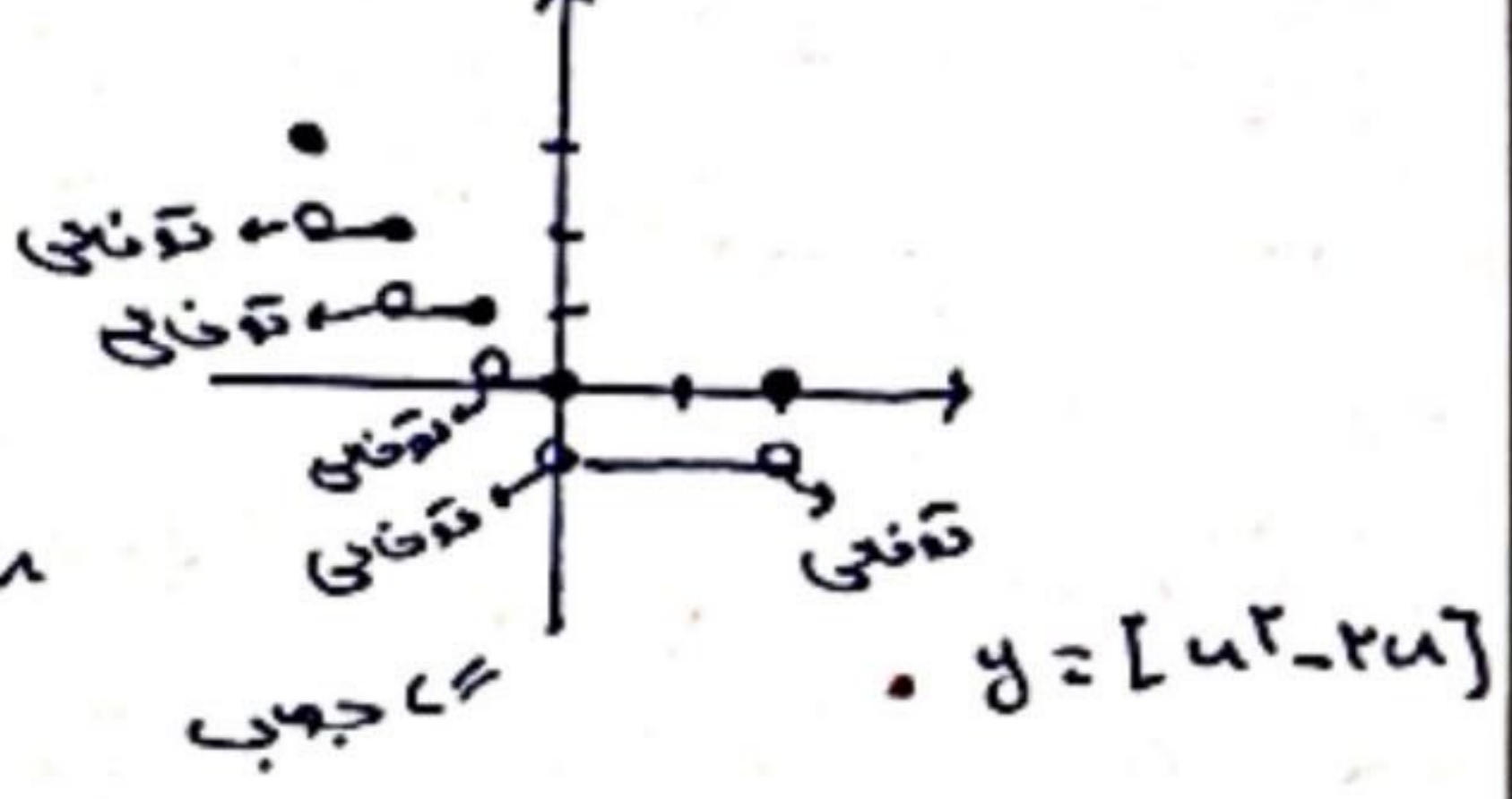


الف) $f(u) = [1-u] - [u+1]$ $u \in [-1, 1]$ $\rightarrow$ $\frac{-1-u+1}{-2u-2} = \frac{-u}{-2u-2} = \frac{u}{2u+2}$ $\Rightarrow -\omega < 1-u - [u+1] \leq \omega \Rightarrow [1-u] - [u+1] = \{-\omega, -\omega-1, \dots, \omega-1, \omega\}$ $\Rightarrow R_f = \{\pm\omega, \pm\omega-1, \pm\omega-2, \dots, \pm\omega-1, 0\} \Rightarrow$ جواب ب) $f(u) = \frac{1}{u} - \left[\frac{u+1}{u} \right] = \frac{1}{u} - \left[\frac{1}{u} \right] - 1 \Rightarrow 0 \leq t < 1 \Rightarrow -1 \leq t-1 < 0$ $\Rightarrow R_f = [-1, 0) \Rightarrow$ جواب	 6
الف) $y = [-2u] - 1 \quad u \in (-1, 1)$ $-1 < u \leq -\frac{1}{2} \Rightarrow y = 1 - 1 = 0$ $-\frac{1}{2} < u \leq 0 \Rightarrow 0 < -2u < 1 \Rightarrow [-2u] = 0 \Rightarrow y = -1$ $0 < u \leq \frac{1}{2} \Rightarrow -1 < -2u < 0 \Rightarrow [-2u] = -1 \Rightarrow y = -2$ $\frac{1}{2} < u < 1 \Rightarrow -2 < -2u < -1 \Rightarrow [-2u] = -2 \Rightarrow y = -3$  جواب	ب) $y = u - 2\left[\frac{u}{2}\right] \quad u \in (-2, 2)$ $-2 < u < 0 \Rightarrow -1 < \frac{u}{2} < 0 \Rightarrow \left[\frac{u}{2}\right] = -1 \Rightarrow y = u + 2$ $0 < u < 2 \Rightarrow 0 \leq \frac{u}{2} < 1 \Rightarrow \left[\frac{u}{2}\right] = 0 \Rightarrow y = u$  جواب 7
الف) $y = [1 u -1] \quad u \in [-2, 2]$ $y = u$  $y = 1 u -1$   جواب	ب) $y = [u^2 - 2u] \quad u \in [-1, 2]$   جواب 8
$a + [b] = 2, 4 \quad b - [a] = 2, 4$ $[a] = u \Rightarrow a \geq u + 0, 2$ $[b] = y \Rightarrow b \geq y + 0, 4$ $\Rightarrow u + 0, 2 + y = 2, 4 \Rightarrow u + y = 2, 4$ $\Rightarrow y + 0, 4 \leq u = 2, 4 \Rightarrow y - u = 2$ $2y = 4 \Rightarrow y = 2$ $u = 1$	$a + b = 2, 4 + 1, 2 \in 2, 4$ جواب 9
$(1+\sqrt{2})^2 + (1-\sqrt{2})^2 = 198 \Rightarrow (1+\sqrt{2})^2 = 198 - (1-\sqrt{2})^2 \Rightarrow [(1+\sqrt{2})^2] = [198 - (1-\sqrt{2})^2]$ $\Rightarrow [(1+\sqrt{2})^2] = 194$ جواب 10	