

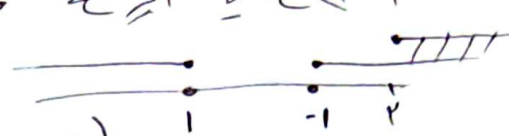
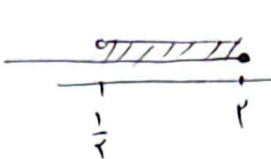
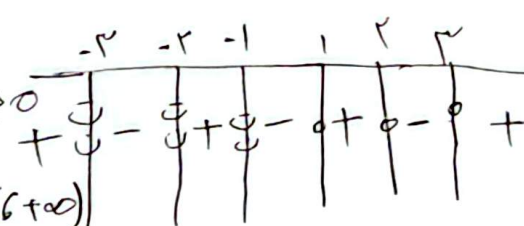
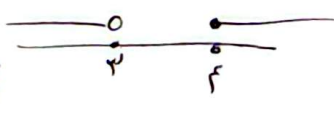
$\tan 110 = 0$ $\tan 110 = \frac{\sqrt{3}}{2}$ $\tan 110 = 1$ $\tan 110 = \sqrt{3}$	$\tan 120 = -\sqrt{3}$ $\tan 135 = -1$ $\tan 150 = -\frac{\sqrt{3}}{2}$	$\tan 14 = -1$ $\tan 150 = -\frac{\sqrt{3}}{2}$ $\tan 160 = 1$	$\tan 170 = -\frac{\sqrt{3}}{2}$ $\tan 180 = 0$ $\tan 190 = \frac{\sqrt{3}}{2}$ $\tan 200 = \sqrt{3}$	1
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الف) $\frac{\sqrt{3}}{2} + \frac{\sqrt{3}}{2} = \frac{2\sqrt{3}}{2}$ ب) $-\frac{\sqrt{3}}{2} - \frac{\sqrt{3}}{2} - \frac{2}{2} = -\frac{\sqrt{3} + \sqrt{3} + 2}{2}$ ج) تعریف نشده د) $1 + 1 = 2$	2
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$a^2 + 2a = 2a + a + 2$ $a^2 + a - 2 = 0$ $(a+2)(a-1) = 0$ $a = -2$ یا $a = 1$	$a > 0$ شرط $f(1) = 1^2 + f(1) = 1 + 2 = 3$	3
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$ x+1 \geq 2$ $x+1 \geq 2$ یا $x+1 \leq -2$ $\Rightarrow x \geq 1$ یا $x \leq -3$ if $x = -3 \rightarrow 2(-3)^2 - b = 11 - b$ $\rightarrow a + 2(-3) = a - 6$ $11 - b = a - 6 \rightarrow a + b = 17$	4
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الف) $x^2 - 4x^2 = 0 \rightarrow x^2(x-4) = 0 \rightarrow x = 4$ یا $x = 0$ $\Rightarrow R - \{0, 4\}$ ب) $\div 2 \rightarrow x^3 + 2x^2 + x + 2 = 0 \rightarrow x^2(x+2) + 1(x+2) = 0$ $\rightarrow (x+2)(x^2+1) = 0 \rightarrow R - \{-2\}$ (توجه: $x^2+1=0$ در $\mathbb{R}$ جواب ندارد)	5
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$x^2 - 1 \geq 0 \rightarrow x^2 \geq 1 \rightarrow x \geq 1 \vee x \leq -1$  $x - 2 \geq 0 \rightarrow x \geq 2 = Df = [2; +\infty)$ ب) $4 - 2x \geq 0 \rightarrow x \leq 2$ $4 - 2x > 0 \rightarrow x < 2$  $\rightarrow Df = \left(\frac{1}{2}; 2\right]$	6
$x \cdot a \geq 0 \rightarrow x \geq a \rightarrow x \geq \frac{a}{x}$ $b - x \geq 0 \rightarrow b \geq x \rightarrow x \leq \frac{b}{x}$ $\frac{a}{x} = 2 \rightarrow a = 12 \rightarrow \frac{a}{b} = \frac{12}{6} = 2$ $\frac{b}{x} = 2 \rightarrow b = 6$ $\left[\frac{b}{x}; \frac{a}{x}\right]$	7
الف) $x^2 - x - 6 \geq 0 \rightarrow (x-3)(x+2) \geq 0 \rightarrow x \leq -2 \vee x \geq 3$ ب) $(x-4)^2 \rightarrow x \neq 4 \rightarrow Df = (-\infty; -2] \cup [3; 4) \cup (4; +\infty)$ ب) $\sqrt{\frac{(x-1)(x+2)(x-3)}{(x+1)(x+2)(x-2)}} \geq 0$  $(-\infty; -2) \cup (-2; -1) \cup [1; 2] \cup [3; +\infty)$	8
الف) $2[x] \geq 4 \rightarrow [x] \geq 2 \rightarrow Df = [2; +\infty)$ ب) $2[x] \geq 0 \rightarrow [x] \geq \frac{0}{2} \rightarrow Df = [0; +\infty)$	9
الف) $x-3 > 0 \rightarrow x \neq 3 \rightarrow \text{موجب} \rightarrow x+1 \geq 0 \rightarrow x \geq -1$ $4-x \geq 0 \rightarrow x \leq 4$ $Df \rightarrow [-1; 3) \cup (3; 4]$ ب) $[x] \geq 4 \rightarrow [x] \leq 2$ $x \geq 4 \quad x < 3$ $Df = \emptyset$ 	10