

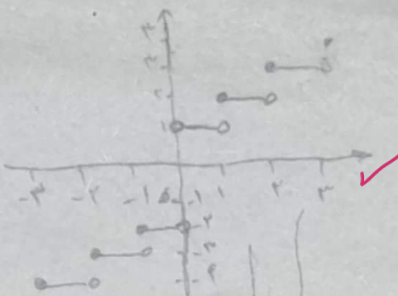
$$-1 \leq \cos \alpha \leq 1 \rightarrow -1 \leq r \cos \alpha \leq 1 \quad R_f = [\checkmark, 1] \quad (r) \quad (1)$$

19, Va

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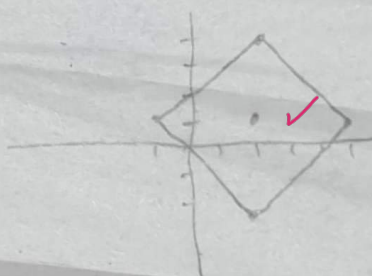
$$x \geq 0 \rightarrow 1 + [x]$$

$$x < 0 \rightarrow -1 + [x]$$



$$\frac{a}{2} \leq r \quad (r) \quad (3)$$

$$\begin{cases} x-r+y-1 \leq r \rightarrow y \leq x+r+1 \\ r-x+y-1 \leq r \rightarrow y \leq x+r \\ r+x+1-y \leq r \rightarrow y \geq x+1 \\ x-r+1-y \leq r \rightarrow y \geq x-1 \end{cases}$$



$$x \geq 0 \rightarrow x + \frac{1}{x} \geq r \Rightarrow x + \frac{1}{x} + r \sqrt{x + \frac{1}{x}} \geq r + r \sqrt{r} \quad R_f = [\checkmark, +\infty) \quad (r) \quad (1)$$

$$-\sin^2 \alpha + r \sin \alpha + r \frac{\sin \alpha}{r} - 1 - r + r \leq 0 \rightarrow \frac{\sin \alpha}{r} - 1 + r + r \leq r$$

$$\frac{-b}{r \sin \alpha} \leq 1 \quad R_f = [\checkmark, r]$$

$$(1 \times 9) + \left(\frac{(1+9) \times 9}{r} \right) \times \left(-\frac{1}{r} \right) = 9 - 10 \leq 10 \leq 10 \quad (r) \quad (1)$$

$$a \leq 0 \quad r b + c = 0 \rightarrow c = -r b \quad r b + c \leq 1 \rightarrow r b - r b \leq 1 \quad (r) \quad (1)$$

$$g(x) = \sqrt{x^2 + r} \rightarrow \min \left\{ \frac{0}{r} \right\} \rightarrow [r, +\infty) \rightarrow b \leq 1 \quad c = -r$$

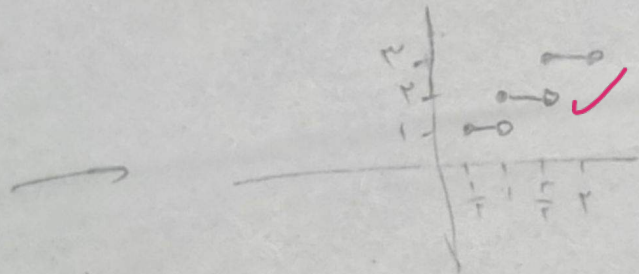
$$\frac{n(n-1)}{n+1} = \frac{n(n-1)(n+1)}{(n+1)} = n^2 - 1 \rightarrow \begin{cases} 1 \\ -1 \end{cases} \Rightarrow \checkmark \quad (1, \checkmark) \quad (1)$$

$$a = -1 \quad n^2 - 1 \neq 1 \rightarrow n^2 - 1 = 1 \neq 0 \rightarrow n^2 = 2 \Rightarrow b = \sqrt{2} \quad \checkmark$$

$$\frac{f-1}{f(-1)} = -1 \checkmark \rightarrow f(-1) = \boxed{2}$$

$$n^2 + an + b = 1 \quad (n-1)^2 = n^2 - 4n + 1 \quad \Rightarrow \begin{cases} a = -4 \\ b = 1 \end{cases} \quad (2) \quad (4)$$

$$D_f = [-4, 1] \xrightarrow{a=-4} -4-1 < 1 \quad n=1 \rightarrow 1-1 < 1 \quad R_f = [-1, 0] \quad \checkmark$$



$$(2) \quad \checkmark \quad 3 \quad (5)$$