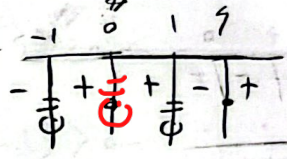


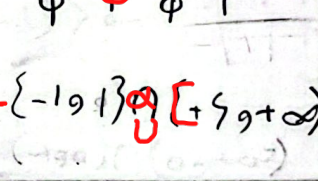
حتما صورتها را بنویسید!!

الف) $\frac{a^3 - 6a}{a^3 - a} > 0 \Rightarrow$

صورت: $a(a^2 - 6) > 0$



مخرج: $a(a^2 - 1) > 0$

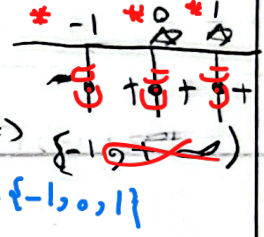


الف $\Rightarrow a + |a| > 0 \Rightarrow \mathbb{R}^+$

ب) $\frac{a^3 - a^3}{a^3 - a} > 0$

صورت: $a^3(a^2 - 1) > 0$

مخرج: $a^3 - a > 0 \Rightarrow a^2(a - 1) > 0$



ب $\Rightarrow a|a| > 0 \Rightarrow \mathbb{R}^+ \quad \textcircled{2} \checkmark$

الف $2 - \{a\} > 0 \Rightarrow \{a\} < 2 \Rightarrow (-\infty, 2)$

ب $2 - \{a\} > 0 \Rightarrow \{a\} < 2 \Rightarrow (-\infty, 2) \quad \textcircled{2} \checkmark$

الف $\{a + \frac{2}{3} - 1\} + \{a + \frac{2}{3}\} > 0$

$\{a + \frac{2}{3}\} - 1 + \{a + \frac{2}{3}\} > 0 \Rightarrow \textcircled{2} \checkmark$

$2\{a + \frac{2}{3}\} > 1 \Rightarrow \{a + \frac{2}{3}\} > \frac{1}{2}$

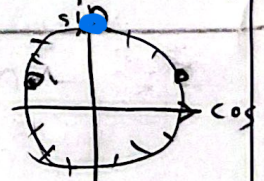
$a + \frac{2}{3} > 1 \Rightarrow a > \frac{1}{3} \Rightarrow P_f = [\frac{1}{3}, +\infty)$

ب $\{a - \frac{1}{3}\} + \{-a + \frac{1}{3}\} > 0$

$\Rightarrow \{a - \frac{1}{3}\} + \{-(a - \frac{1}{3})\} \Rightarrow$

$a \in \mathbb{Z} \Rightarrow \{a\} + \{-a\} = 0$
 $a \notin \mathbb{Z} \Rightarrow \{a\} + \{-a\} = -1 \Rightarrow a - \frac{1}{3} \in \mathbb{Z}$

$\Rightarrow a \in \mathbb{Z} + \frac{1}{3} \Rightarrow \{a | a = k + \frac{1}{3}, k \in \mathbb{Z}\}$

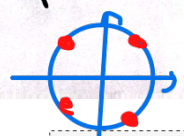


الف $\sin a - 1 \neq 0 \Rightarrow \sin a \neq 1 \Rightarrow \sin a \neq 1 \Rightarrow$

$\mathbb{R} - \{k\pi + \frac{\pi}{2}\}$

ب $\sin^2 a - 1 \neq 0 \Rightarrow \sin^2 a \neq 1 \Rightarrow \sin a \neq \pm 1 \Rightarrow \sin a \neq \pm 1 \Rightarrow$

$\Rightarrow \mathbb{R} - \{k\pi + \frac{\pi}{2}, k\pi + \frac{3\pi}{2}\}$



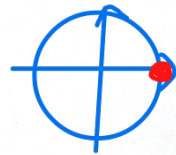
$$\textcircled{الف} \quad x \sin \alpha - 1 > 0 \Rightarrow x \sin \alpha > 1$$

$$(2k\pi + \frac{\pi}{2}, 2k\pi + \frac{5\pi}{2})$$

$$\sin \alpha > \frac{1}{x} \Rightarrow$$



$$\textcircled{ب} \quad \cos \alpha - 1 > 0 \Rightarrow \cos \alpha > 1 \Rightarrow \{ \text{no solution} \}$$



$$\textcircled{الف} \quad -1 \leq |a| - 2 \leq 1 \Rightarrow -1 \leq |a| \leq 3 \Rightarrow$$

$$[-3, 3]$$

$$-2 \leq |a| \leq 4$$

$$[2, 4]$$

$$\Rightarrow -4 \leq a \leq -2 \text{ or } 2 \leq a \leq 4 \Rightarrow D_f = [-4, -2] \cup [2, 4]$$

$$C = -1 \leq a^2 + 3a + 1 < 1 \Rightarrow -2 \leq a^2 + 3a \leq 0 \Rightarrow$$

$$-2 \leq a(a+3) \leq 0 \Rightarrow a^2 + 3a + 2 \geq 0 \Rightarrow \frac{-3 \pm \sqrt{9-4}}{2} = \frac{-3 \pm \sqrt{5}}{2}$$

$$[2, 3]$$

$$a^2 + 3a \leq 0 \Rightarrow a(a+3) \leq 0 \Rightarrow \frac{-3 \pm \sqrt{9-0}}{2} = \frac{-3 \pm 3}{2}$$

$$a \leq 11 \Rightarrow (-\infty, 11]$$

$$[1, 28]$$

$$B = a^3 - a > 0$$

$$a(a^2 - 1) > 0 \Rightarrow \frac{-1 \pm \sqrt{1-0}}{2} = \frac{-1 \pm 1}{2} \Rightarrow (-1, 0) \cup (1, \infty)$$

$$\textcircled{الف} \quad \varepsilon^m + 1 \neq 0 \quad \varepsilon^m \neq -1 \Rightarrow R$$

$$B \Rightarrow \varepsilon^m - 1 \neq 0 \Rightarrow \varepsilon^m \neq 1 \Rightarrow R - \{0\}$$

$$C = \varepsilon^m - 2 \Rightarrow \varepsilon^m - 2 \neq 0 \Rightarrow \varepsilon^m \neq 2 \Rightarrow R - \{2\}$$

$$[1, 8]$$

$$D = \varepsilon^m - 3 \neq 0 \Rightarrow \varepsilon^m \neq 3 \Rightarrow R$$

$$D_f = R - \{1, 9, 3\}$$

$$\text{اف} = \varepsilon a + 1 \in W \Rightarrow \varepsilon a \in W - 1 \Rightarrow \varepsilon a \in W - 1 \Rightarrow a \in \frac{W-1}{\varepsilon}$$

$$D_f = \{a \mid a = \frac{k-1}{\varepsilon} \text{ and } k \in W\}$$

$$\frac{3a-2}{2a-0} \in W \Rightarrow 3a-2 \in 2Wa-0W \Rightarrow 3a-2 \in -0W+2$$

$$\Rightarrow a \in \frac{-0W+2}{3-2W} \Rightarrow D_f = \{a \mid a = \frac{-0k+2}{3-2W} \text{ and } k \in W\}$$