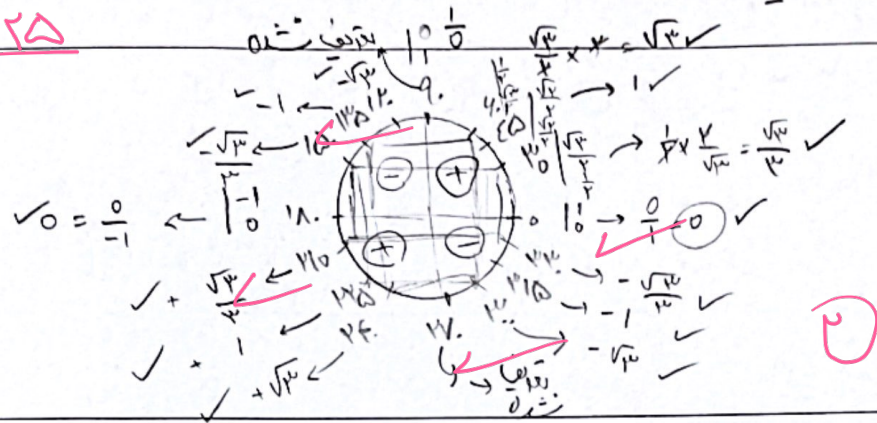




الف) $\frac{1}{2} - \frac{2}{2} - \frac{2}{2} = \frac{-5}{2}$ د) $\cos(\frac{\pi}{6}) + \sin(\frac{\pi}{6}) = \frac{\sqrt{3}}{2} + \frac{1}{2} = \frac{\sqrt{3}+1}{2}$

ب) $\frac{\sqrt{3}}{2} + \frac{\sqrt{3}}{2} - (\frac{2}{2} - \frac{1}{2}) = \frac{2\sqrt{3}}{2} + \frac{1}{2} = \frac{2\sqrt{3}+1}{2}$

ج) $\frac{2\sqrt{3}}{2} - \frac{1}{2} + \frac{2}{2} = \frac{2\sqrt{3}+1}{2}$

اول $n = a$ فرض شود a بدست آید
 بعد a از روی ضابطه هابیت برآید
 $n^2 + a + 2 = 0$
 $n^2 + 2 = 0$
 $n^2 = -2$
 $n = -1$
 $a \rightarrow -1 \rightarrow f(1)$
 $a = -1$ (فرض) $\rightarrow n^2 - 1 \rightarrow n^2 + \epsilon n \rightarrow if(1) = 1 + \epsilon = a$
 باید a رو بدست بیاری !!!

$n^2 - 2n + 1 \leq -2$
 $n + 1 \geq 2 \rightarrow n \geq 1$
 $n^2 - b = a + 2n \xrightarrow{ipm = -3} 1 - b = a - 4$
 $a + b = 2\epsilon$

الف) $n^3 - \epsilon n^2 \neq 0 \rightarrow n^2(n - \epsilon) \neq 0 \rightarrow 1 - \{0, \epsilon\}$
 ب) $2n^3 + \epsilon n^2 + 2n + \epsilon$
 $n^2(2n + \epsilon) + 2n + \epsilon$
 $(n^2 + 1)(2n + \epsilon) \rightarrow 2n + \epsilon \neq 0 \rightarrow 2n \neq -\epsilon \rightarrow n \neq -\frac{\epsilon}{2}$

الف) $m^2 - 1 \geq 0 \rightarrow (m-1)(m+1) \geq 0$. $\frac{-1}{+1} \frac{1}{0+}$ $(1, +\infty) \cup (-\infty, -1]$ I

$m - 2 \geq 0 \rightarrow m \geq 2 \rightarrow [2, +\infty)$ II $I \cap II = [2, +\infty)$

ب) $4 - 3m \geq 0 \rightarrow 3m \leq 4 \rightarrow m \leq \frac{4}{3}$

$4m - 2 \geq 0 \rightarrow 4m \geq 2 \rightarrow 2m \geq 1 \rightarrow m \geq \frac{1}{2}$ $[\frac{1}{2}, \frac{4}{3}]$

$\frac{4x^2}{12} - a = 0 \rightarrow a = \frac{4}{3}$

if $m = 2$
 $b - 3m = 0 \rightarrow b - 4 = 0 \rightarrow b = 4$

$\frac{b}{a} = \frac{4}{\frac{4}{3}} = 3$

الف) $(m-3)(m+2)$ $\frac{-3}{0+} \frac{-2}{0+}$ $(-\infty, -3) \cup (-2, +\infty)$

if $m^2 = 4 \rightarrow m = \pm 2$
 $t^2 - 13t + 4 \rightarrow (t-4)(t-1)$ $\frac{-4}{0+} \frac{-1}{0+}$ $(-\infty, 4) \cup (1, +\infty)$

ب) $\frac{(m-1)(m^2-m-4)}{(m+1)(m^2+m-4)} \geq 0$ $\frac{-1}{0+} \frac{-4}{0+} \frac{-1}{0+} \frac{1}{0+}$ $(-\infty, -1) \cup (-4, 1) \cup (4, +\infty)$

الف) $2[m] - 1 \geq 0 \rightarrow 2[m] \geq 1 \rightarrow [m] \geq \frac{1}{2} \rightarrow m \geq 1$

ب) $2[m] - 5 \geq 0 \rightarrow 2[m] \geq 5 \rightarrow [m] \geq \frac{5}{2} \rightarrow m \geq 3$

الف) $\frac{m+1}{|m-3|} \geq 0$ $m+1 \geq 0 \rightarrow m \geq -1$
 $|m-3| > 0 \rightarrow m \neq 3$ $m-3 < 0 \rightarrow m < 3$ $m-3 \neq 0 \rightarrow m \neq 3$

$4-m \geq 0 \rightarrow m \leq 4$
 $\frac{-1}{0+} \frac{4}{0+}$ $(-\infty, 4]$
 $I \cap II = \emptyset$

$[m] - 1 \geq 0 \rightarrow [m] \geq 1 \rightarrow m \geq 1$ I $1 - [m] \geq 0 \rightarrow [m] \leq 1 \rightarrow m < 2$ II

۳- $x = a$ در هر دو ضابطه مشترک است پس باید صدق آسانتر با هم برابر باشد

$$a^2 + 4(a) = 2(a) + a + 2 \leadsto a^2 + 4a = 3a + 2 \leadsto$$

$$a^2 + a - 2 = 0 \rightarrow (a+2)(a-1) = 0 \xrightarrow{a>0} a = 1$$

$$\leadsto \phi(n) = \begin{cases} n^2 + 4n & n \geq 1 \\ 2n + 3 & n \leq 1 \end{cases} \leadsto \boxed{\phi(1) = 5}$$