

زکاتونی بنام پروردگارم (هم به جنبه صغر)

1- $1 - at + b = 0 \rightarrow f(a+b) = 1$
 $9 - 3a + b = 0 \rightarrow -3a + b = -9 \Rightarrow b = 3a - 9$
 $a + b = 1 \Rightarrow a + 3a - 9 = 1 \Rightarrow 4a = 10 \Rightarrow a = 2.5$
 $b = 3(2.5) - 9 = 7.5 - 9 = -1.5$
 $-2a = -1 \rightarrow a = 0.5$

2- $P_2 | x^3 = 3, S = 4 | x^3 = 4 \rightarrow x^3 - 3 = 0, x^3 - 4 = 0$

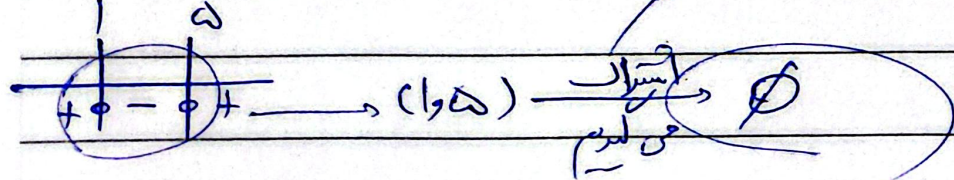
2- $-1 - 3n = 0 \rightarrow n = -1/3$
 عبارت برای مقادیر دیگر از n معنی است
 $k - 2 < 0 \rightarrow k < 2$
 $-n + m - 1 = 0 \rightarrow m = 1 + n$
 $-5 + m = 0 \rightarrow m = 5$

$\frac{m+k}{n} = \frac{5}{-1/3} = -15$

3- $\frac{1}{f} x^2 + 2x + 9 > \frac{1}{f} \rightarrow -\frac{1}{f} x^2 + 2x + 9 > 0$
 $x^2 - 4x - 9 < 0$
 $(x+1)(x-5) < 0$
 $(-1, 5) \rightarrow (a, b)$

4- $f(x) = x^2(x-3) - (x-5) < 0 \rightarrow (x^2-1)(x-3) < 0$
 $x > 0 \rightarrow (1, 3) = (a, b) \rightarrow \frac{3+1}{2} = 2$
 $f(2) = 1 - 1(2) + 3(2-3) = 1 - 2 + 3(-1) = 1 - 2 - 3 = -4$

5- $ax^2 + bx + c \rightarrow a < 0 \rightarrow a < 1$
 $\Delta < 0 \rightarrow (a-1)^2 - 4(a-1) < 0 \Rightarrow a^2 + 1 - 2a - 4a + 4 = a^2 - 6a + 5 < 0 \rightarrow (a-1)(a-5) < 0$



$$\frac{m(m^{\gamma}+m)}{m-\gamma} = \frac{m^{\gamma}(m^{\gamma}+1)}{m-\gamma}$$

$\xrightarrow{\text{مساویت}}$ $\frac{\overset{\circ}{\gamma}}{\underset{\gamma}{-}} \quad \frac{\overset{*}{\gamma}}{\underset{\gamma}{+}}$

$\rightarrow (\gamma, +\infty)$
 $\hookrightarrow m$

-9

$$\frac{(x+\gamma)(x-\gamma)(x-1)^{\gamma}}{(x^{\gamma}+x+1)^{\gamma}(x-x)^{\gamma}} \leq 0$$

$\xrightarrow{\text{مساویت}}$ $\frac{\overset{-\gamma}{+}}{\underset{\gamma}{+}} \quad \frac{\overset{\gamma}{-}}{\underset{\gamma}{-}} \quad \frac{\overset{\gamma}{+}}{\underset{\gamma}{+}} \quad \frac{\overset{\gamma}{-}}{\underset{\gamma}{-}}$

$\rightarrow [\gamma, \gamma) \cup [\gamma, +\infty)$

-10

$$\frac{\gamma x^{\gamma} - \gamma x < \gamma \rightarrow \frac{\gamma x^{\gamma} - \gamma x^{\gamma} - \gamma x - 1}{x^{\gamma} + \gamma} < 0 \rightarrow \frac{\gamma x^{\gamma} - \gamma x - 1}{x^{\gamma} + \gamma} < 0$$

-11

$$\frac{(x+\gamma)(x-\gamma)}{x^{\gamma} + \gamma} \leq 0$$

$\xrightarrow{\text{مساویت}}$ $\frac{\overset{-\gamma}{+}}{\underset{\gamma}{+}} \quad \frac{\overset{\gamma}{-}}{\underset{\gamma}{+}}$

$\rightarrow a \in (-\gamma, \gamma), b - a = \gamma - (-\gamma) = 2\gamma$

$$\frac{\gamma x^{\gamma} - \gamma x > 1 \rightarrow \frac{\gamma x^{\gamma} - \gamma x + x + 1}{x+1} \Rightarrow \frac{\gamma x^{\gamma} - \gamma x + 1}{x+1} > 0$$

$\xrightarrow{\text{مساویت}}$ $\frac{\overset{\gamma}{-}}{\underset{\gamma}{+}} \quad \frac{\overset{\gamma}{-}}{\underset{\gamma}{+}}$

$\rightarrow (-1, +\infty)$

-12

$$\frac{\gamma x^{\gamma} - \gamma x < 0 \rightarrow \frac{\gamma(\gamma x^{\gamma} - \gamma)}{x+1} < 0$$

$\xrightarrow{\text{مساویت}}$ $\frac{\overset{\gamma}{-}}{\underset{\gamma}{+}} \quad \frac{\overset{\gamma}{-}}{\underset{\gamma}{+}}$

$\rightarrow (-\infty, -1) \cup (0, \frac{\gamma}{\gamma})$

-13

$$\frac{x^{\gamma} - 1 < \gamma \rightarrow \frac{x^{\gamma} - \gamma x - 1}{x} < 0 \rightarrow \frac{\gamma x^{\gamma} - \gamma x - 1}{x} < 0$$

$\xrightarrow{\text{مساویت}}$ $\frac{\overset{\gamma}{-}}{\underset{\gamma}{+}} \quad \frac{\overset{\gamma}{-}}{\underset{\gamma}{+}} \quad \frac{\overset{\gamma}{-}}{\underset{\gamma}{+}}$

-14

$\rightarrow x \in (-\infty, -1] \cup (0, \gamma]$