

درس اسلامی

تالیف شماره ۳

یازدهم رفر

## ۲. آخرین عالی در تمام نوشته

(الف)  $2x^3 + 3x^2 - 1x + 3 \div x - 1 \rightarrow (x-1)(2x^2 + 5x - 3)$  (1)

$-2x^3 + 2x^2 \quad 2x^2 + 5x - 3 \quad \hookrightarrow x + 1$

$5x^2 - 1x + 3$

$\Delta = 25 - 4(-4) = 49$

$-5x^2 + 5x$

$\rightarrow -3x + 3$

$\frac{-5 \pm 7}{2} = \frac{1}{2} \text{ و } -3$

$\frac{+3x - 3}{0}$

$Df: R - \left\{ -\frac{3}{2}, \frac{1}{2}, 1 \right\}$

(ب)  $2x^3 + 9x^2 + 10x + 3 \div x + 1 \rightarrow (x+1)(2x^2 + 7x + 3)$   
 $\hookrightarrow x \neq -1$

$-2x^3 + 2x^2$

$2x^2 + 7x + 3$

$\Delta = 49 - 4(6) = 25$

$5x^2 + 10x + 3$

$-5x^2 + 5x$

$\frac{-5 \pm 5}{2} = 0 \text{ و } -1$

$3x + 3$

$Df: R - \left\{ -\frac{3}{2}, -\frac{1}{2}, -1 \right\}$

(الف)  $2x^3 - 2x^2 + 2x - 1 \div x - 1 \rightarrow (x-1)(2x^2 - x + 1)$  (2)

$-2x^3 + 2x^2$

$2x^2 - x + 1$

$\hookrightarrow x + 1$

$\Delta = 1 - 4(2) < 0$

$-2x^2 + 2x - 1$

$x - 1$

$+2x^2 + 2x$

$\rightarrow x + 1$

$Df: R - \{1\}$

(ب)  $\frac{x+3}{(x-1)(2x^2-x+1)} \rightarrow x = -3, x = 1$   
 $\Delta < 0$   
 $Df: R - \{-3, 1\}$   
 $Df: (-\infty, -3] \cup (1, +\infty)$

①  $x-1 > 0 \rightarrow x > 1 \rightarrow x^2 - 5x + 10 = 0 \quad (x-5)(x-2)$  (3)  
 $x = 5 \text{ و } 2$   
 $x^2 - 5x + 1 - 2x + 5$

②  $x-1 < 0 \rightarrow x < 1 \rightarrow x^2 + 5x - 5 - 2x + 5 = 0 \rightarrow x^2 + 3x = 0$

$x(x+3) = 0 \quad x = 0 \quad x = -3$

$Df: R - \left\{ -3, 0, 2, 5 \right\} \cup (-\infty, -3) \cup (-3, 0) \cup (0, 2) \cup (2, 5) \cup (5, +\infty)$

Veshko

الف)  $[-x] - 2 \geq 0 \rightarrow [-x] \geq 2 \rightarrow -x \geq 2$

$D = (-\infty, -2]$   
 $x \leq -2$

(1)

ب)  $[x^2] - 1 \{x\} - 3 \neq 0 \rightarrow ([x] - 3)([x] + 1)$

$[x] \neq 3 \quad [x] \neq -1 \rightarrow 3 \leq x < 4, \quad -1 \leq x < 0$

$Df = R - [-1, 0) \cup [3, 4)$

(2)

الف)  $\{x - \frac{1}{\mu}\} + \{x + \frac{1}{\mu}\} + 1 \geq 1$

$\rightarrow x + \frac{1}{\mu} \geq 1$

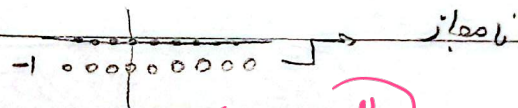
(3)

$\mu[x + \frac{1}{\mu}] \geq 1 \rightarrow [x + \frac{1}{\mu}] \geq \frac{1}{\mu}$

$x \geq \frac{1}{\mu}$

$\rightarrow D = [\frac{1}{\mu}, +\infty)$

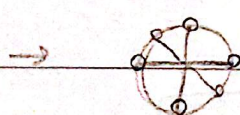
ب)  $\{x - \frac{1}{\mu}\} + \{\frac{1}{\mu} - x\} = 0$



$x - \frac{1}{\mu} \in \mathbb{Z} \rightarrow x \in \mathbb{Z} + \frac{1}{\mu} \rightarrow D = \{ \frac{1}{\mu} + k \mid k \in \mathbb{Z} \}$

(4)

الف)  $y = \frac{\cot x + 1}{\tan x + 1}$



$D = R - (\{ \frac{k\pi}{\mu} \} \cup \{ k\pi - \frac{\pi}{2} \})$

$\tan x + 1 \neq 0 \rightarrow \tan x \neq -1$

ب)  $1 - \mu \sin^2 x \geq 0 \rightarrow \mu \sin^2 x \leq 1 \rightarrow \sin^2 x \leq \frac{1}{\mu}$

$|\sin x| \leq \frac{1}{\mu}$



$D = [k\pi - \frac{\pi}{4}, k\pi + \frac{\pi}{4}]$

(5)

$\sin \leq \frac{1}{\mu}$

$\sin \geq -\frac{1}{\mu}$

الف)  $\mu \sin x - 1 \geq 0 \rightarrow \mu \sin x \geq 1 \rightarrow \sin x \geq \frac{1}{\mu}$

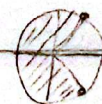


(6)

$D = [2k\pi + \frac{\pi}{4}, 2k\pi + \frac{3\pi}{4}]$

(7)

ب)  $1 - \mu \cos x \geq 0 \rightarrow \mu \cos x \leq 1 \rightarrow \cos x \leq \frac{1}{\mu}$



$D = [2k\pi + \frac{\pi}{\mu}, 2k\pi + \frac{3\pi}{\mu}]$

الف)  $-1 \leq x^2 + 3x + 1 \leq 1 \rightarrow (x+2)(x+1) \rightarrow x = -2, -1$

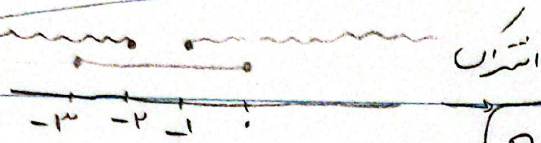
$\frac{-r-1}{+9-4+}$

Veshko  $x^2 + 3x + 2 \geq 0$

$x^2 + 3x \leq 0 \rightarrow x(x+3) \leq 0$

$\frac{-3-0}{+9-0+}$

الافق صفوحه



ا) اذاع الف مطلق 1

$$D_f = [-3, -2] \cup [-1, 0]$$

ب)  $\sqrt{5-2x} < 1 \rightarrow 5-2x < 1 \rightarrow 2x > 4 \rightarrow x > 2$

$5-2x > 0 \rightarrow 2x \leq 5 \rightarrow x \leq 5/2 \rightarrow D = [2, 5/2]$

الف)  $1 - \log_3 x > 0 \rightarrow \log_3 x < 1 \rightarrow x < 3 \rightarrow x > 0$  (9)

ب)  $1 - \log_{1/2} x > 0 \rightarrow \log_{1/2} x < 1$   $D = (0, 2)$   
 $\rightarrow x > 1/2 \rightarrow x > 0 \rightarrow D = (1/2, +\infty)$

الف)  $x^2 - x^2 = 0 \rightarrow x^2 - 4x + 3 = 0 \rightarrow x^2 - 4x + 3 = 0$  (10)

$x^2 - 4x + 3 = 0 \rightarrow x^2 - 4x + 3 = 0 \rightarrow (x-3)(x-1) = 0$

$x=3 \quad x=1$   $D = [1, 3]$

ب)  $\frac{3x+5}{2x+2} \in W \rightarrow \frac{3x+5}{2x+2} \in \frac{3x+5}{2x+2} + \frac{4x}{2x+2}$

$\frac{3x+5}{2x+2} \in \frac{3x+5}{2x+2} + \frac{4x}{2x+2}$   
 $\rightarrow x(3-2w) \in 4w-5 \rightarrow x \in \frac{4w-5}{3-2w}$

$\rightarrow D = \left\{ \frac{4k-5}{3-2k} \mid k \in W \right\}$