

الف) $\frac{1}{r} \cdot \frac{1}{r} - 2 \rightarrow -2, 0$

ب) $\frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}} \rightarrow \frac{3}{\sqrt{2}}$

ج) $\frac{\sqrt{2}}{r} + \frac{\sqrt{2}}{r} + \frac{\sqrt{2}}{r} \rightarrow \frac{3\sqrt{2}}{r}$

د) $\cos(1) + \sin(\frac{\pi}{4}) \rightarrow 1 + 1 = 2$

$x=a, a^r + \epsilon a = r a + a + r \rightarrow a^r + a - r = 0 \quad a = \frac{-1 \pm \sqrt{1+4}}{2} = \frac{-1 \pm 3}{2} = -2, 1$

$\begin{cases} x^r + \epsilon x & x > 1 \\ rx + r & x \leq 1 \end{cases} \quad x=1, 1+\epsilon=0$

$x = -r \rightarrow rx^r - b = a + rx \rightarrow a + b = rx^r - rx \rightarrow 1 + a = r\epsilon$

$\hookrightarrow |rx^r| = r$

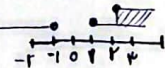
$-r \leq x \leq -1$

الف) $x^r - \epsilon x^r \neq 0 \rightarrow \frac{x^r}{\epsilon} (\frac{x}{\epsilon}) \neq 0 \quad R - \{0, \epsilon\}$

ب) $rx^r + rx^r + rx + \epsilon \neq 0 \xrightarrow{\div r} x^r + rx^r + x + \frac{\epsilon}{r} \neq 0 \quad x^r(x+r) + (x+r) \rightarrow \frac{x+r}{x} (x^r + 1) \neq 0 \quad R - \{-r\}$

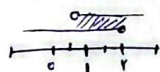
الف) $x^r - 1 > 0 \rightarrow x^r > 1 \rightarrow x > 1 \leq x < -1 \quad [r, +\infty)$

$x - r > 0 \rightarrow x > r$



ب) $a - rx > 0 \rightarrow rx < a \rightarrow x < \frac{a}{r}$

$a - rx > 0 \rightarrow rx > a \rightarrow x > \frac{a}{r}$



$(\frac{a}{r}, 1]$

$ax - a = 0 \xrightarrow{x=r} 1r - a = 0 \rightarrow 1r = a$

$b - rx = 0 \xrightarrow{x=r} b - a = 0 \rightarrow b = a$

$\frac{b}{a} = \frac{a}{1r} = \frac{1}{r}$

الف) $\frac{x^r - x - a}{x^r - 1 + rx^r + rx} > 0 \rightarrow \frac{(x-r)(x+r)}{(x-r)(x+r)(x+r)(x-r)} > 0 \quad \frac{-r}{+} \frac{-r}{-} \frac{r}{-} \frac{r}{+}$

$\hookrightarrow x^r = \epsilon \rightarrow r^r - 1 + r\epsilon + r\epsilon \rightarrow r = a, \epsilon \xrightarrow{t=x^r} x = \pm r, \pm r$

$R - [\epsilon, r] - [r]$

ب) $\frac{(x^r - r)(x-r)}{(x^r - r)(x+r)} > 0 \rightarrow \frac{-r - \sqrt{r} \sqrt{r} r}{+} \frac{-r}{-} \frac{-r}{-} \frac{r}{+} \rightarrow R - [\epsilon, r]$

$\downarrow x^r = r \rightarrow x = \pm \sqrt{r}$

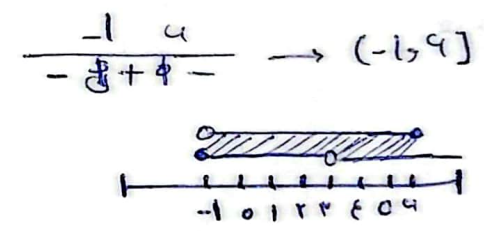
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الف) $|x-2| > 0 \rightarrow |x| > 2 \rightarrow [x] > 2 \rightarrow [2, +\infty)$

ب) $|x-2| > 0 \rightarrow |x| > 2 \rightarrow [x] > \frac{2}{2} \rightarrow [x] > 2 \rightarrow [2, +\infty)$

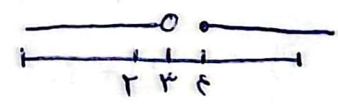
الف) $\frac{x+1}{|x-2|} > 0 \xrightarrow{\oplus} x+1 > 0 \rightarrow x > -1$
 $\hookrightarrow x \neq 2$

$\frac{4-x}{x^2+2x+2} > 0$
 $\hookrightarrow \frac{-2}{2} = -1$



$(-1, 4] - \{2\}$

ب) $|x-2| > 0 \rightarrow [x] > 2 \rightarrow [2, +\infty)$
 $|x-2| > 0 \rightarrow [x] < 2 \rightarrow (-\infty, 2)$



تعريف نسبه