

①

$$yx - y = x^2 + x + 2 \rightarrow x^2 + x - yx + y + 2 = 0$$

$$\frac{1}{a}x^2 + \underbrace{(1-y)}_b x + \underbrace{y+2}_c = 0$$

$$b^2 - 4ac \rightarrow \Delta \geq 0$$

$$1 + y^2 - 4y - 4y - 8 \geq 0$$

$$y^2 - 4y - 7 \geq 0$$

$$(y+1)(y-7)$$

$$\begin{array}{c|c|c|c|c} -1 & & 7 & & \\ \hline + & - & + & - & + \\ \hline 2 & & 2 & & 2 \end{array}$$

$$\boxed{\mathbb{R} - \{-1, 7\}}$$

$$\text{الف) } 2x^2 - 5x + 1 \rightarrow \frac{-b}{2a} = \frac{-5}{4}$$

②

$$\frac{5}{4} \rightarrow \frac{50}{14} - \frac{25}{4} + 1 \rightarrow \frac{50}{14} - \frac{100}{14} + \frac{14}{14} \rightarrow -\frac{36}{14} \rightarrow -\frac{18}{7}$$

$$a) \rightarrow \cup \left[-\frac{18}{7}, +\infty \right)$$

③

$$\text{ب) } \sqrt{-x^2 + 4x - 5} \rightarrow \frac{-b}{2a} \rightarrow \frac{-4}{-2} = 2$$

$$2 \rightarrow -9 + 18 - 5 = 4 \quad a < 0 \quad \rightarrow (-5, 4]$$

$$\sqrt{(-5, 4]} \rightarrow [0, 2]$$

$$\text{ج) } \sqrt{2x^2 - 4x + 1} \rightarrow \sqrt{\mathbb{R}} \rightarrow [0, +\infty)$$

چون توان بزرگتر از صفر

$$\text{د) } \log^2(-4x^2 + 7x + 4) \neq 0 \rightarrow (-\infty, +\infty)$$

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$$(1) \text{ if } y = \frac{x_{n+1}}{x_n - 4} \rightarrow 2yx - 4y = x_{n+1}$$

$$2yx - 4y = x_{n+1} \rightarrow x(2y - 4) = x_{n+1}$$

$$x = \frac{x_{n+1}}{2y - 4} \quad 2y \neq 4 \rightarrow y \neq 2 \quad \{R - \{2\}\}$$

(1)

$$b) \sqrt{\frac{x_{n+1}}{x_n - 4}} \rightarrow yx - 4y = x_{n+1} \rightarrow yx - 4x = x_{n+1}$$

$$x(y - 4) = x_{n+1} \rightarrow x = \frac{x_{n+1}}{y - 4} \quad y \neq 4 \quad \{R - \{4\}\}$$

$$\sqrt{\{R - \{4\}\}} \rightarrow [0, \infty) - \{4\}$$

$$2) \frac{x^2 + 4}{\sqrt{x^2 + 4}} \Rightarrow \frac{x^2 + 4}{\sqrt{x^2 + 4}} \rightarrow \sqrt{x^2 + 4} + \frac{1}{\sqrt{x^2 + 4}}$$

$$x^2 + 4 \rightarrow \min \mu$$

$$\sqrt{\mu} + \frac{1}{\sqrt{\mu}} = \frac{\mu + 1}{\sqrt{\mu}} = \frac{\mu + 1}{\mu} = \frac{1}{\mu} \rightarrow \left[\frac{1}{\mu}, \infty \right)$$

$$3) x^2 + \frac{1}{x^2 + 4} \rightarrow x^2 + \frac{1}{x^2 + 4} + \frac{1}{x^2 + 4}$$

~~scribbles~~

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$$x^2 + 4 \rightarrow \min \rightarrow 4 \rightarrow x^2 + \frac{1}{x^2 + 4} = \left(\frac{1}{4} \right)$$

کمترین مقدار

$$R = \left[\frac{1}{4}, \infty \right)$$

ملک لکھنؤ

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(۴) $yn^2 - y = r n^2 + r$

$yn^2 - r n^2 = y + r$

$n^2(y - r) = y + r \rightarrow n^2 = \sqrt{\frac{y+r}{y-r}}$

$\frac{y+r}{y-r} \geq 0 \rightarrow \frac{-r}{+} \frac{r}{+} \quad \mathbb{R} - (-r, r]$

$\max = r \rightarrow \frac{r}{+} = r$

$\min = 0 \rightarrow -r$

تذکرہ ۲
 $\mathbb{R} - (-r, r]$

$\sin n y + r y = r \sin n - 1$

$\sin n (y - r) = -1 - r y \rightarrow \sin n = \frac{-1 - r y}{y - r}$

$-1 \leq \frac{-1 - r y}{y - r} \leq 1 \rightarrow -1 \leq \frac{-1 - r y}{y - r} \rightarrow -y + r \leq -1 - r y$

$2y \leq r \rightarrow y \leq \frac{r}{2}$

$-1 - r y \leq y - r \rightarrow -1 \leq r y \rightarrow y \geq \frac{1}{r}$

$R = [\frac{1}{r}, \frac{r}{2}]$

$\max \text{ ① } \frac{r-1}{r} = \frac{1}{r}$

$\min \text{ ② } \frac{1}{r}$

$\frac{1}{r}$

$[-\frac{1}{r}, \frac{1}{r}]$

محدودیتی دو طرفہ ہے

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(۴)

$$yx^2 - yx + y = x^2 - x + \frac{1}{x}$$

$$yx^2 - x^2 - yx + x + y - \frac{1}{x} = 0$$

$$\underbrace{(y-1)x^2}_a + \underbrace{(-y+1)x}_b + \underbrace{y - \frac{1}{x}}_c = 0$$

$$bx - cax \rightarrow yx + 1 - 2y - f(y-1)(y - \frac{1}{x})$$

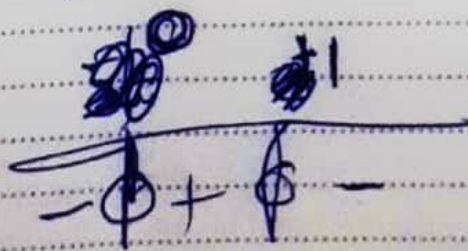
$$yx - \frac{1}{x}y - y + \frac{1}{x}$$

$$yx - \frac{2}{x}y + \frac{1}{x} - yx + 2y - 1$$

$$yx + 1 - 2y - yx + 2y - 1$$

$$-yx + 2y \geq 0 \leftarrow \Delta \geq 0$$

$$y(-x + 2) \geq 0$$



$$R = [-2, 0]$$

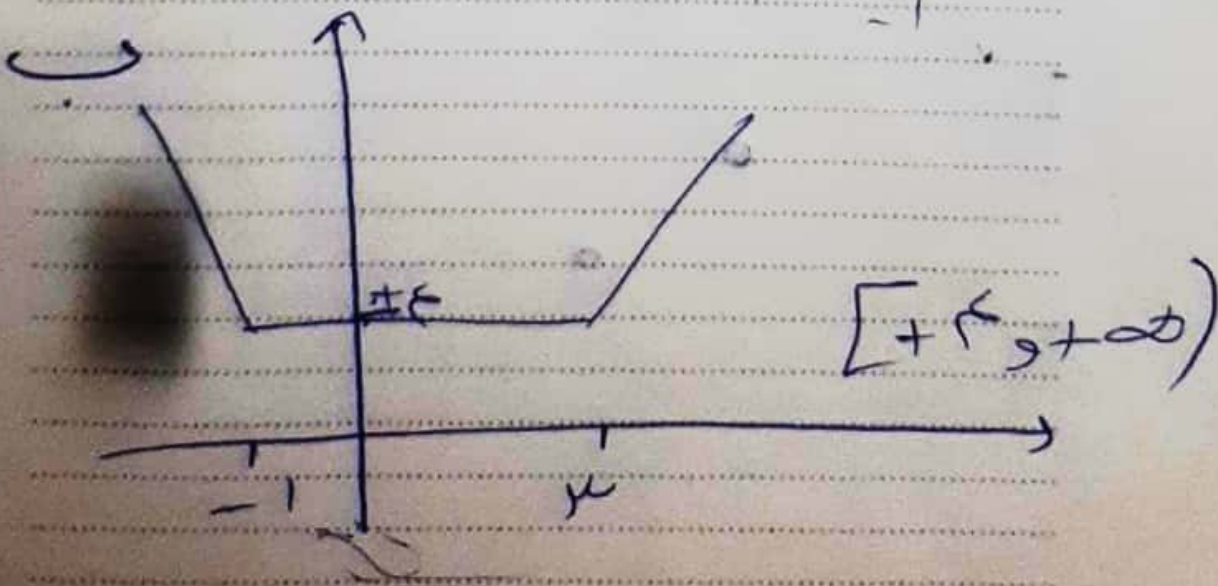
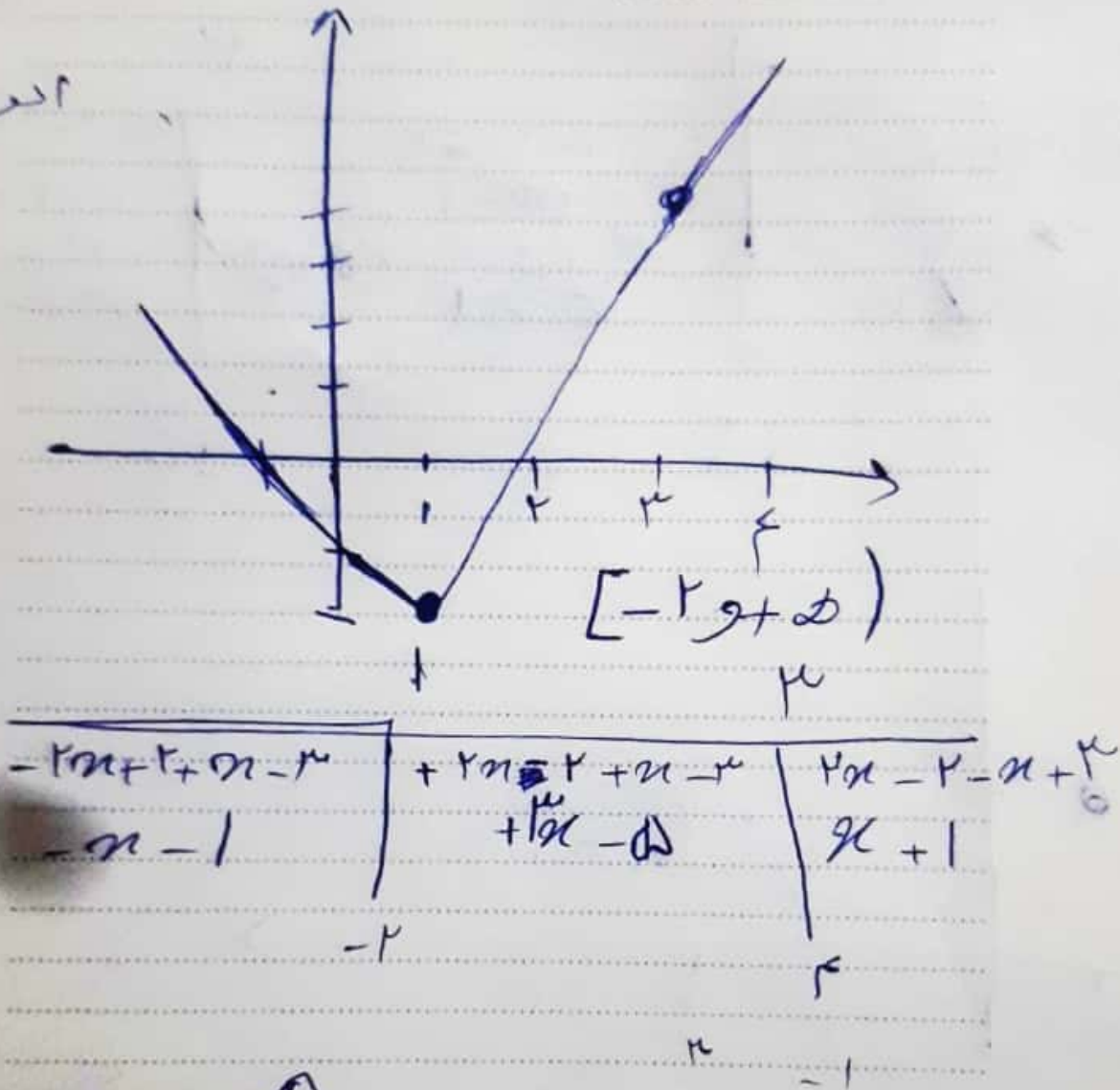
روز بزرگداشت شهدا (سالروز صدور فرمان حضرت امام خمینی (رحمة الله علیه) مبنی بر تأسیس بنیاد شهید انقلاب اسلامی ۱۳۵۸ هجری)

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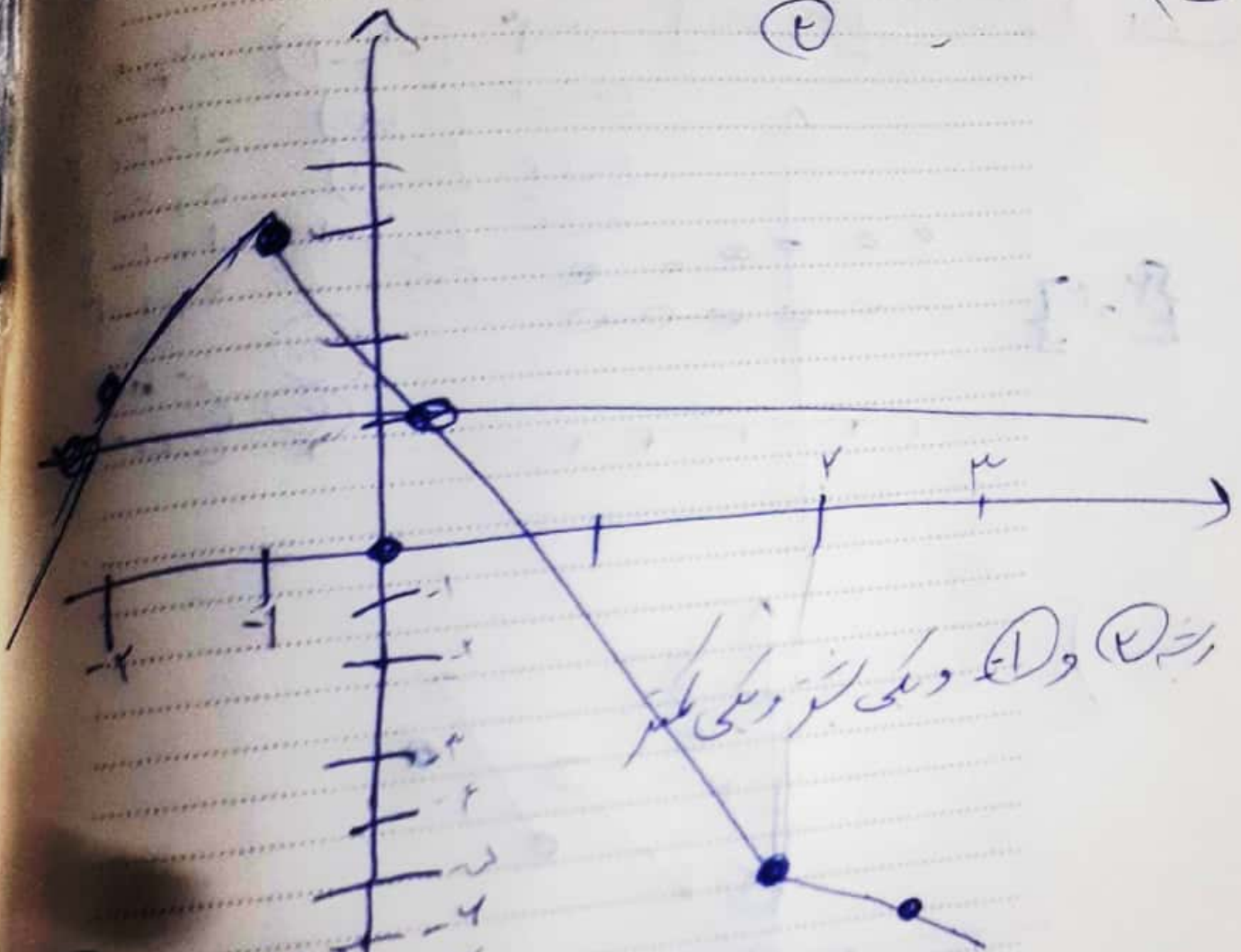
(✓)

الف



①

④



④ → -47-v

① $\rightarrow \mu$

④ $\rightarrow -2$

A hand-drawn diagram of a cell. It features a large, irregular outer boundary representing the cell membrane. Inside, there is a smaller, roughly circular structure labeled 'Nucleus' with a central dot. To the right of the nucleus is a large, oval-shaped structure labeled 'Vacuole'.

$$(-Y) \rightarrow Y$$

است $y=1$ کجا؟ $-\frac{1}{3}$ و -19

$$(-\phi_9^{\mu}) \cup [-\frac{1}{\mu} \phi + \mu]$$

الف) $[a] + [b-a]$ $[-3, 3]$ $[-2, -1]$ $-2 + 3 = 1$

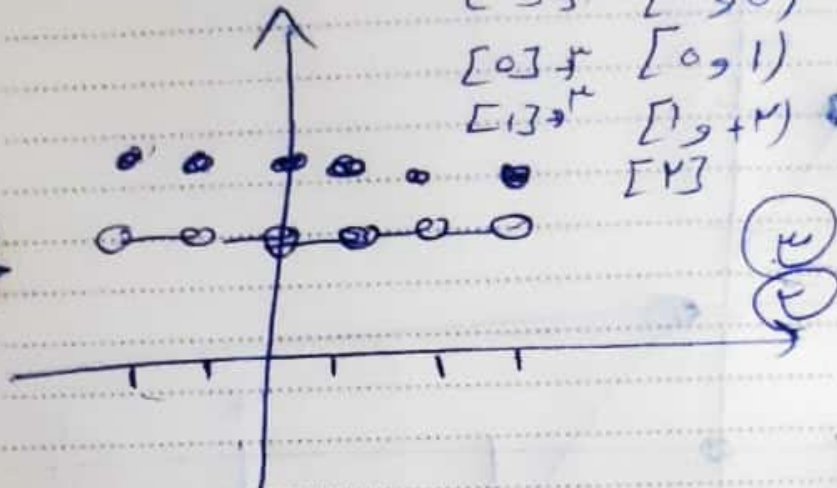
$[-9, 3]$ $[-5, 0]$ $-1 + 3 = 2$

$[0, 3]$ $[0, 1]$ $0 + 3 = 3$

$[1, 3]$ $[1, 2]$ $1 + 1 = 2$

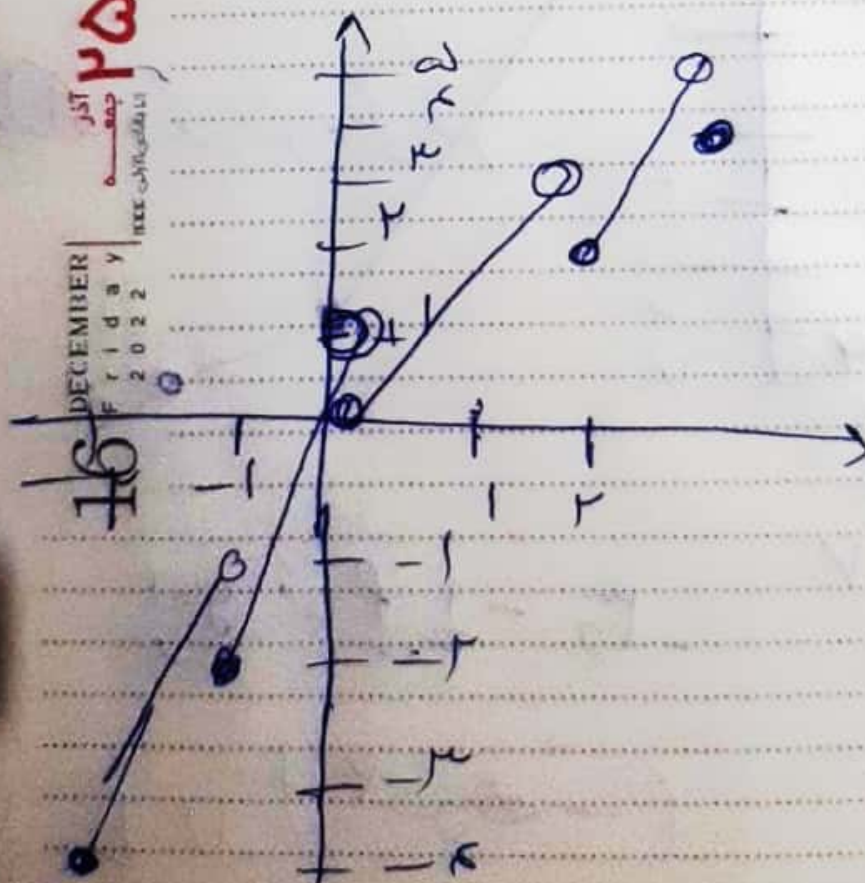
$[2, 3]$ $2 + 1 = 3$

$[2, 3]$



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اعداد صحیح
اعداد گسسته



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الف

$$\begin{array}{l} \xrightarrow{\text{max}} 1 \\ \xrightarrow{\text{min}} -1 \end{array} \quad \begin{array}{l} +1 \\ +\mu \end{array} \quad \left[\frac{\mu}{2}, \mu \right]$$

$$L \rightarrow \frac{-b}{2a} = \frac{+1}{2} \rightarrow \frac{\mu}{2}$$

ب)

$$\begin{array}{l} \xrightarrow{\text{max}} +1 \\ \xrightarrow{\text{min}} 0 \end{array} \quad \begin{array}{l} \rightarrow \mu \\ \rightarrow 1 \end{array} \quad [1, \mu]$$

$$\xrightarrow{\text{L}} \frac{-b}{2a} = -\frac{1}{2} \times$$