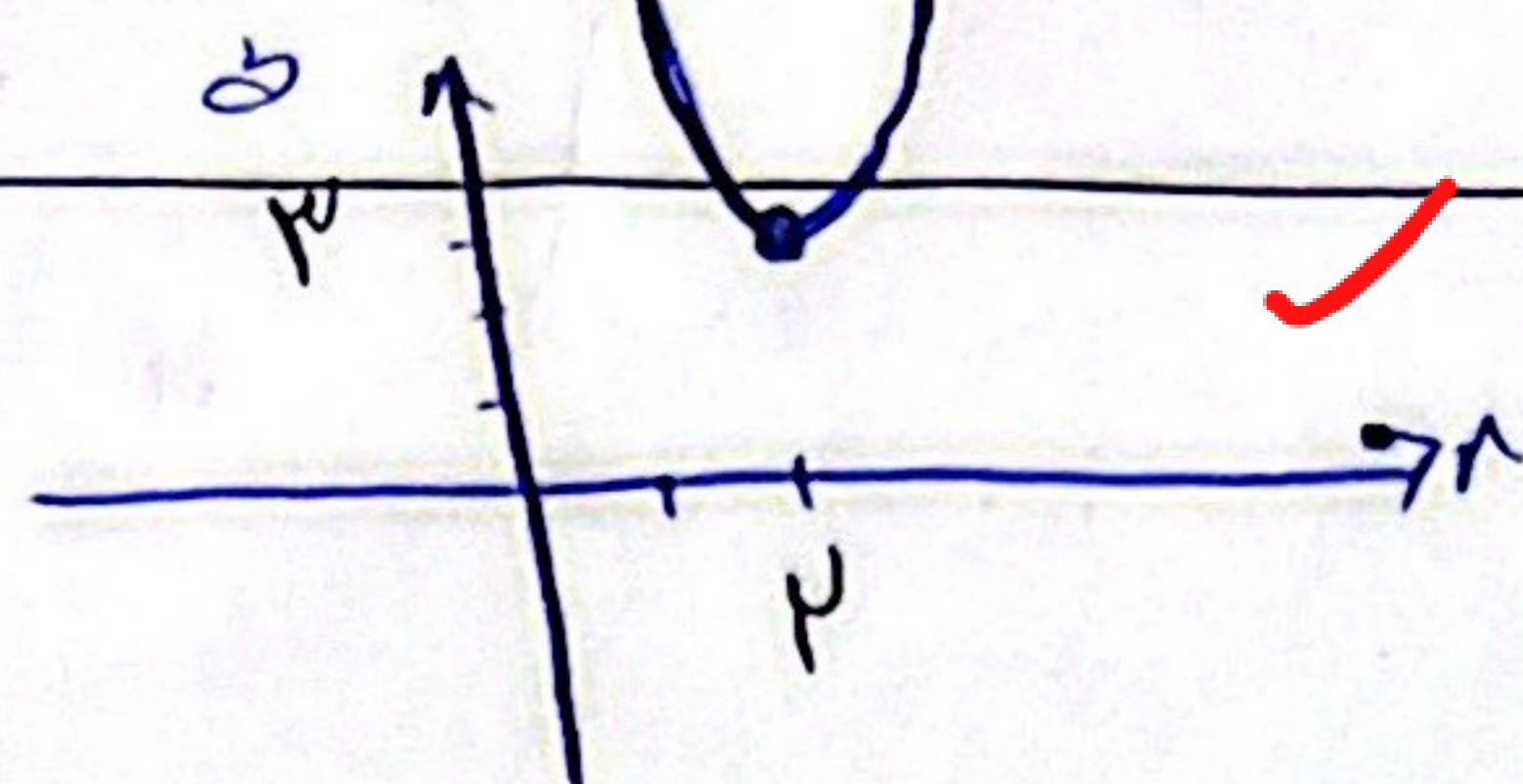
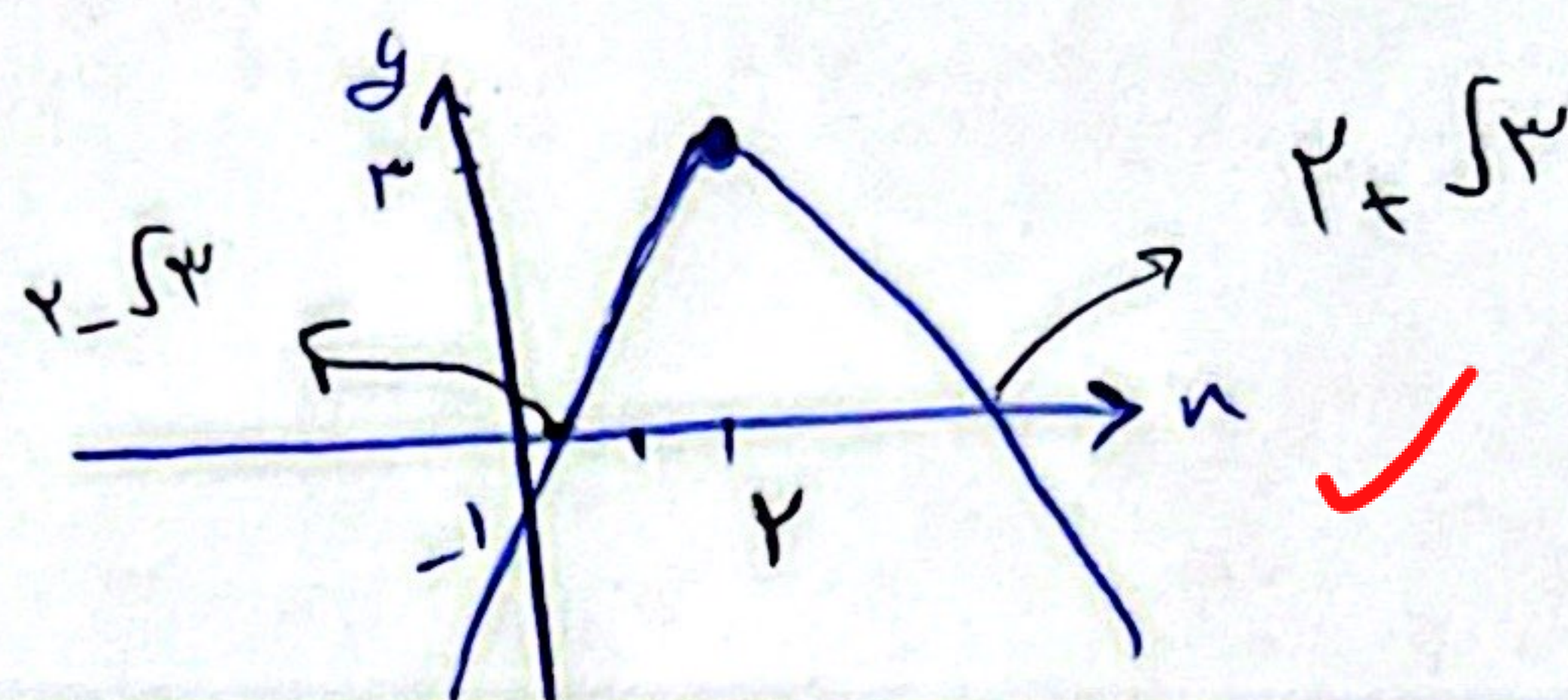




الف) $y = x^2 - 4x + 7$
 $y = (x-2)^2 + 3$
 $\min \left| \frac{y}{x} \right|$

ب) $y = -x^2 + 4x - 1$
 $\frac{y}{x} = \frac{-x^2 + 4x - 1}{x}$



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$y = x^2 + (m+1)x + \frac{1}{4}m + \frac{1}{2}$

الف) $\Delta \geq 0 \rightarrow (m+1)^2 - 4\left(\frac{1}{4}m + \frac{1}{2}\right) \geq 0$
 $\Delta = b^2 - 4ac$
 $m^2 + 2m + 1 - m - 2 \geq 0 \rightarrow m^2 + m - 1 \geq 0$
 $m \in (-\infty, -3) \cup (\omega, +\infty)$

ب) $\Delta \geq 0 \rightarrow m^2 - 2m - 1 \geq 0$
 $(m-2)(m+1) \geq 0 \rightarrow m \in (-1, 2)$

ج) $\Delta < 0 \rightarrow m^2 - 2m - 1 < 0 \rightarrow m \in (-1, 2)$
 $\Delta > 0 \rightarrow m \in \mathbb{R} - (-3, \omega)$

$y = (m-2)x^2 - 2(m+1)x + 1 = 0$

الف) $\Delta \leq 0 \rightarrow -\frac{b}{a} = \frac{2(m+1)}{m-2} \leq \frac{-1}{m-2} \rightarrow m \in (-1, 2)$
 $P > 0 \rightarrow \frac{c}{a} > 0 \rightarrow \frac{1}{m-2} > 0 \rightarrow m \in (2, +\infty)$

$\Delta \geq 0 \rightarrow (m+1)^2 - 4\left(\frac{1}{4}m + \frac{1}{2}\right) \geq 0$
 $m^2 + 2m + 1 - m - 2 \geq 0 \rightarrow m^2 + m - 1 \geq 0$

ب) $P < 0 \rightarrow \frac{1}{m-2} < 0 \rightarrow m-2 < 0 \rightarrow m < 2$
 $\Delta \leq 0 \rightarrow \frac{2(m+1)}{m-2} \leq \frac{-1}{m-2} \rightarrow -1 < m < 2$
 $m \in (-1, 2)$

$y = (m-2)x^2 - 2(m+1)x + 1 = 0$

الف) $P < 0 \rightarrow \frac{1}{m-2} < 0 \rightarrow m-2 < 0 \rightarrow m < 2 \rightarrow m \in (-\infty, 2)$

ب) $-\frac{b}{2a} = x \rightarrow \frac{2(m+1)}{2(m-2)} = x$
 $\frac{-2m-2}{2m-4} = x \rightarrow -\frac{m+1}{m-2} = x$
 $\frac{m+1}{m-2} = 1 \rightarrow m = 1$

$\frac{y}{x} = \frac{x^2 - (2\sin \alpha)x + \frac{3}{4}}{x}$

$\Delta \geq 0 \rightarrow (2\sin \alpha)^2 - 4\left(\frac{3}{4}\right) \geq 0$
 $4\sin^2 \alpha - 3 \geq 0$
 $\sin^2 \alpha \geq \frac{3}{4} \rightarrow \sin \alpha \geq \frac{\sqrt{3}}{2}$
 $\sin \alpha \geq 1$
 $\sin \alpha = 1$

$\Delta \geq 0 \rightarrow -\frac{b}{2a} > 0$
 $\frac{2\sin \alpha}{2} > 0 \rightarrow \sin \alpha > 0$
 $\sin \alpha > 0$

$\sin \alpha = 1$
 $\frac{y}{x} = \frac{x^2 - 2x + \frac{3}{4}}{x}$

$x^2 - 2x + \frac{3}{4} = 0$
 $(x-1)^2 = \frac{1}{4} \rightarrow x = 1 \pm \frac{1}{2}$

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$$y = \frac{(r_n^r - r_n - 1)(r_n^r - r_n - \omega)}{1 - r^r} = \frac{(n-1)(r_n+1)(n+1)(r_n-\omega)}{(1-r)(1+r)}$$

$$\begin{aligned} & \rightarrow -4n^r + 12n + \omega \\ \max & \left| -\frac{b}{2a} = \frac{12}{14} = \frac{6}{7} \right. \\ & \left. -4 \left(\frac{6}{7} \right)^2 + 12 \left(\frac{6}{7} \right) + \omega = \frac{144}{49} + \frac{12 \cdot 6}{7} + \omega = \frac{144}{49} + \frac{112}{7} = \frac{288}{49} \checkmark \end{aligned}$$

$$\begin{aligned} r_n^r - r_n - 1 & \rightarrow \frac{r_n^r - r_n - 1}{(n-1)(r_n+1)} = (n-1)(n+1) \\ r_n^r - r_n - \omega & \rightarrow \frac{r_n^r - r_n - \omega}{(n-\omega)(n+1)} = (n-\omega)(n+1) \\ r_n^r - r_n - \omega & = (r_n - \omega)(n+1) \end{aligned}$$

$$m x^r - (m+1)x - r = 0$$

$$r = \frac{b}{2a} = \frac{1}{2}$$

$$r = \frac{1}{2} \rightarrow \Delta = b^2 - 4ac = 1 - 4(-r) = 1 + 4r = 3$$

$$r = \frac{1}{2} \rightarrow \Delta = 3 \rightarrow r = \frac{1}{2} \rightarrow \Delta = 3 \rightarrow r = \frac{1}{2}$$

$$\Delta = 3 \rightarrow r = \frac{1}{2} \rightarrow \Delta = 3 \rightarrow r = \frac{1}{2}$$

$$\begin{aligned} & \rightarrow r_n^r - 4n - r = 0 \\ & \Delta = b^2 - 4ac = 16 - 4(-r) = 16 + 4r = 20 \end{aligned}$$

$$\frac{r\alpha + \theta^\omega}{\omega\theta^r} = \frac{r\alpha}{\omega\theta^r} + \frac{\theta^\omega}{\omega} = \frac{12\omega}{14} + \frac{r\omega}{14} = 19 \checkmark$$

$$r_n^r - \omega n + r = 0 \rightarrow \frac{r}{\omega} = \frac{1}{\omega} \rightarrow r = \frac{1}{\omega}$$

$$r = \frac{1}{\omega}$$

$$g_1 = ax^r + bx + c \xrightarrow{n=0} c = 5 \rightarrow c = 5$$

$$g_1 = 1x + 1 \xrightarrow{n=1} g_1 = 2$$

$$\begin{aligned} & \rightarrow 1a + 1b + c = 2 \\ & \rightarrow 1a - 1b + c = 0 \end{aligned}$$

$$\begin{aligned} & \rightarrow 1a + 1b = 2 \\ & \rightarrow 1a - 1b = 0 \end{aligned}$$

$$\begin{aligned} & g_1 = x^r + 1x + 5 \\ & \rightarrow \frac{b}{2a} = -\frac{1}{2} = -\frac{r}{2} \end{aligned}$$

$$g_2 = x^r + (m+1)x + m + 1$$

$$\begin{aligned} & \rightarrow r_n^r + (m+1)n + m + 1 = 0 \\ & \rightarrow \Delta = b^2 - 4ac = 1 - 4(m+1) = 1 - 4m - 4 = -4m - 3 \end{aligned}$$

$$\Delta = -4m - 3$$

$$\begin{aligned} & m = 1 \rightarrow r_n^r + 2n + 2 = 0 \rightarrow n^r + 2n + 2 = 0 \\ & \rightarrow n = -1 \end{aligned}$$

$$\begin{aligned} & m = 2 \rightarrow r_n^r + 3n + 3 = 0 \rightarrow n^r + 3n + 3 = 0 \\ & \rightarrow n = -1 \end{aligned}$$

$$g_2 = 1 \rightarrow m = 2 \checkmark$$