

الف) $y^3 = 2m^2 - 1$
 $y_1^3 = 2m^2 - 1$
 $y_2^3 = 2m^2 - 1$
 $y_1^3 = y_2^3 \rightarrow y_1 = y_2$
 تابع

ب) $y^3 + y = 2m^2 + 1$
 $y_1^3 + y_1 = 2m^2 + 1$
 $y_2^3 + y_2 = 2m^2 + 1$
 $y_1^3 - y_2^3 + y_1 - y_2 = 0$
 $(y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2 + 1) = 0$
 $y_1 = y_2$
 تابع

الف) $y = m^2 - 1$
 تابع

ب) $|y| + my = m^2 + 1$
 $m \geq 0 \quad |y| = 1$
 $y = \pm 1$
 تابع

ج) $y^3 + m^3 = m - 1$
 $m \geq 2$
 $y^3 + m^3 = m - 1$
 $y^3 = m - 1 - m^3$
 $y = \pm \sqrt[3]{m - 1 - m^3}$
 تابع

د) $\sqrt{y} + \sqrt{m} = 2$
 $m \geq 0$
 $\sqrt{y} = 2 - \sqrt{m}$
 $y = (2 - \sqrt{m})^2$
 تابع

الف) $\tan \frac{x}{3}$
 $\frac{x}{3} = 90^\circ$
 $\tan \rightarrow \frac{\sin}{\cos}$
 $\Rightarrow \frac{\frac{\sqrt{3}}{2}}{\frac{1}{2}} = \sqrt{3}$

ب) $\cot \frac{\sqrt{3}x}{4}$
 $\frac{\sqrt{3}x}{4} = 45^\circ$
 $\cot \rightarrow \frac{\cos}{\sin}$
 $\Rightarrow \frac{-\frac{\sqrt{3}}{2}}{\frac{1}{2}} = -\sqrt{3}$

ج) $\tan 30^\circ$
 $\tan \rightarrow \frac{\sin}{\cos}$
 $\Rightarrow \frac{\frac{1}{2}}{\frac{\sqrt{3}}{2}} = \frac{1}{\sqrt{3}}$

د) $\cot 180^\circ$
 $\cot \rightarrow \frac{\cos}{\sin}$
 $\Rightarrow \frac{-1}{0} \Rightarrow \infty$

الف) $\sin \alpha = \frac{1}{2}$
 $\alpha = 30^\circ, 150^\circ$
 $\alpha = [\pi + \frac{\pi}{6}, \pi + \frac{5\pi}{6}]$

ب) $\cos \alpha = \frac{\sqrt{2}}{2}$
 $\alpha = 45^\circ$
 $\alpha = [\alpha + \frac{\pi}{2}]$

ج) $0 < \alpha < \frac{2\pi}{3}$
 $\rho = \alpha$

الف) $y = -2m + 2$
 $m \geq 1$
 $m \geq 1 \rightarrow y = -2(1) + 2 = 0$
 $\Rightarrow (1, 0)$
 $m \geq -1 \rightarrow y = -2(-1) + 2 = 4$
 $\Rightarrow (-1, 4)$
 $m \geq 1$
 $\Rightarrow (0, 2)$

ب) $f(m) = \begin{cases} -2m + 2 & m \geq 1 \\ m^2 & -1 < m < 1 \\ m + 1 & m \leq -1 \end{cases}$
 $y = m + 1$
 $y = -1 + 1 = 0$
 $m = -1$
 $\Rightarrow (-1, 0)$

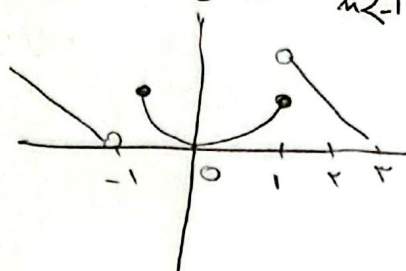
ج) نمودار

مردار تابع ضمیمه ای $f(m)$ را رسم کنی.

$$m > 1 \Rightarrow m^2 + 3m + 2$$

$$-1 \leq m \leq 1 \Rightarrow m^2 - 1$$

$$m < -1 \Rightarrow m^2 - 3m - 2$$



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$$y = -m + 3 \quad m > 1 \Rightarrow (1, 2)$$

$$y = 2$$

$$y = m^2 \quad -1 \leq m \leq 1 \Rightarrow (-1, 1) (1, 1)$$

$$y = 0 \Rightarrow (0, 0)$$

$$y = -m - 1 \quad m < -1$$

$$y = -(-1) - 1 = 0 \Rightarrow (-1, 0)$$

الف) $y = \frac{(m-2)(m-3)(m-4)}{r}$

m	2	3	4
y	-	+	-

ب) $y = \frac{(m-2)(m-3)(m-4)}{r}$

m	2	3	4
y	-	+	+

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الف) $y = \frac{(m-2)(m-4)}{r}$

m	2	3	4
y	-	+	-

ب) $y = \frac{(m-2)(m-4)}{r}$

m	2	3	4
y	+	-	-

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الف) $\frac{m^3 - 3m + 2}{m^2 - 1}$

$$\frac{m^3 - 3m + 2}{m^2 - 1} = \frac{(m-1)(m+2)}{(m-1)(m+1)} = \frac{m+2}{m+1}$$

ب) $\frac{m^3 - 3m + 2}{m^2 - 1}$

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الف) $\frac{m^2 - 1}{m^2 + m + 2}$

$$\frac{m^2 - 1}{m^2 + m + 2} = \frac{(m-1)(m+1)}{m^2 + m + 2}$$

ب) $\frac{m^2 + 3m + 2}{m^2 + m + 2}$

$$\frac{m^2 + 3m + 2}{m^2 + m + 2} = \frac{(m+1)(m+2)}{m^2 + m + 2}$$

الف) $\frac{m^2 - 1}{m^2 + m + 2}$

$$\frac{m^2 - 1}{m^2 + m + 2} = \frac{(m-1)(m+1)}{m^2 + m + 2}$$

ب) $\frac{m^2 + 3m + 2}{m^2 + m + 2}$

$$\frac{m^2 + 3m + 2}{m^2 + m + 2} = \frac{(m+1)(m+2)}{m^2 + m + 2}$$

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