

(۱)

$$\begin{aligned} \text{الف) } x^3 - 2x^2 + 1 &= 0 \rightarrow x_1 = 1, x_2 = 1, x_3 = -1 \\ \text{ب) } x^3 - 2x^2 + 1 &= 0 \rightarrow x_1 = 1, x_2 = 1, x_3 = -1 \\ \text{ج) } x^3 - 2x^2 + 1 &= 0 \rightarrow x_1 = 1, x_2 = 1, x_3 = -1 \\ \text{د) } x^3 - 2x^2 + 1 &= 0 \rightarrow x_1 = 1, x_2 = 1, x_3 = -1 \end{aligned}$$

الف) $y = x^2 - 1$



ب) $x^2 + 2x + 1 = 0 \rightarrow (x+1)^2 = 0 \rightarrow x = -1$
 ج) $x^2 + 2x + 1 = 0 \rightarrow (x+1)^2 = 0 \rightarrow x = -1$
 د) $x^2 + 2x + 1 = 0 \rightarrow (x+1)^2 = 0 \rightarrow x = -1$

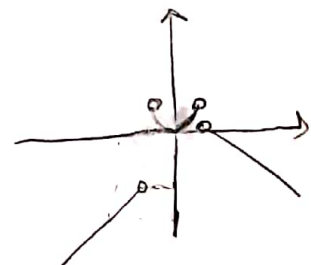
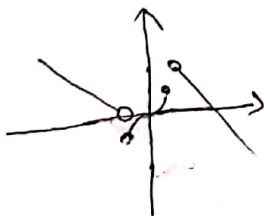
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(۲)

الف) $\tan \frac{\pi}{3} = \frac{\sqrt{3}}{1} = \sqrt{3}$
 ب) $\cot \frac{\pi}{6} = \frac{1}{\frac{1}{\sqrt{3}}} = \sqrt{3}$
 ج) $\tan 45^\circ = \frac{1}{1} = 1$
 د) $\cot 135^\circ = \frac{-1}{1} = -1$

الف) $\sin \alpha = \frac{1}{2} \rightarrow 30^\circ, 150^\circ$
 ب) $\cos \alpha = \frac{\sqrt{2}}{2} \rightarrow 45^\circ, 135^\circ$



الف) $y = (x-2)(x-3)(x-4)$

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الف) $y = \frac{(x-2)(x-4)}{x^2 - x - 3}$

$$\begin{array}{r} 2 \quad 3 \quad 4 \\ -\phi + \phi - \phi + \end{array}$$

ب) $\frac{(x-2)(x-4)}{(x-3)^2}$

$$\begin{array}{r} 2 \quad 3 \quad 4 \\ + \phi - \phi - \phi + \end{array}$$

الف) $y = \frac{x^3 - 3x + 2}{x^2 - x - 3}$

$$\begin{array}{r} 1 \quad 3 \\ + \phi - \phi + \end{array}$$

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

$$\begin{array}{r} 1 \quad 2 \quad 3 \\ + \phi + \phi - \phi + \end{array}$$

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

$$\begin{array}{r} -1 \quad 0 \quad 1 \\ -\phi + \phi - \phi + \end{array}$$

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

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این عبارت همیشه مثبت است