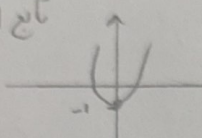
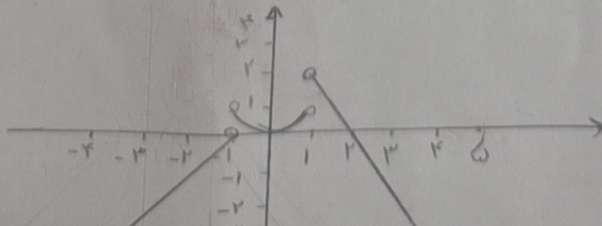
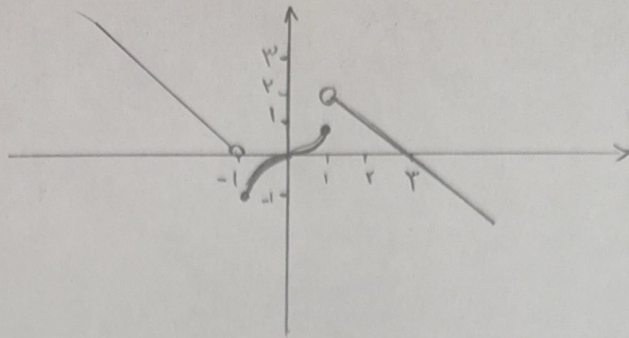
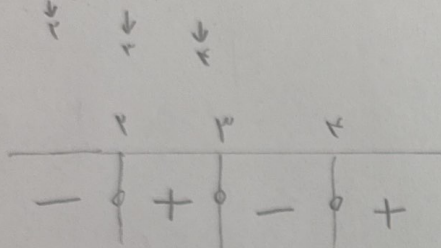


الف) $y^3 = 2x^3 - 1$ $\begin{cases} y_1^3 = 2x_1^3 - 1 \\ y_2^3 = 2x_2^3 - 1 \end{cases} \xrightarrow{x_1 = x_2} y_1^3 = y_2^3 \Rightarrow y_1 = y_2$ تابع است	ب) $y^3 + y = 2x^3 - 1$ $\rightarrow \begin{cases} y_1^3 + y_1 = 2x_1^3 - 1 \\ y_2^3 + y_2 = 2x_2^3 - 1 \end{cases} \xrightarrow{x_1 = x_2} y_1^3 + y_1 = y_2^3 + y_2$ $\rightarrow y_1^3 + y_1 - y_2^3 - y_2 = 0 \Rightarrow (y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2 + y_1 + y_2 + 1) = 0$ $(y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2 + y_1 + y_2 + 1) = 0 \Rightarrow \begin{cases} y_1 - y_2 = 0 \Rightarrow y_1 = y_2 \\ y_1^2 + y_1 y_2 + y_2^2 + y_1 + y_2 + 1 = 0 \end{cases}$ $\rightarrow y_1 = -y_2 \pm \sqrt{\Delta}$ $\Delta = 4y_2^2 + 4y_2 + 5$ $\Delta > 0$ $\Rightarrow$ $y_1 = -y_2 \pm \sqrt{4y_2^2 + 4y_2 + 5}$		
الف) $x^2 - 1$ تابع است  بارم شکل	ب) $y + xy = x^2 + 1 \xrightarrow{x=0} y = 1 \Rightarrow y = \pm 1$ در این $x=0$ مقدار دارد پس تابع نیست	۲	
ج) $y^3 + x^3 = 2x^3 - 1$ $\begin{cases} y_1^3 = -x_1^3 + 2x_1^3 - 1 \\ y_2^3 = -x_2^3 + 2x_2^3 - 1 \end{cases} \xrightarrow{x_1 = x_2} y_1^3 = y_2^3 \Rightarrow y_1 = y_2$ پس تابع است	د) $\sqrt[3]{y} + \sqrt[3]{x} = 2$ $\begin{cases} \sqrt[3]{y_1} = 2 - \sqrt[3]{x_1} \\ \sqrt[3]{y_2} = 2 - \sqrt[3]{x_2} \end{cases} \xrightarrow{x_1 = x_2} \sqrt[3]{y_1} = \sqrt[3]{y_2} \Rightarrow y_1 = y_2$ پس تابع است		
الف) $\tan \frac{\pi}{3}$ $\tan \frac{\pi}{3} = \frac{\sin \frac{\pi}{3}}{\cos \frac{\pi}{3}} = \frac{\frac{\sqrt{3}}{2}}{\frac{1}{2}} = \sqrt{3}$	ب) $\cot \frac{\sqrt{3}\pi}{6}$ $\cot 110^\circ = \frac{\cos 110^\circ}{\sin 110^\circ} = \frac{-\frac{\sqrt{3}}{2}}{\frac{1}{2}} = -\sqrt{3}$	۳	
ج) $\tan 110^\circ$ $\tan 110^\circ = \frac{\sin 110^\circ}{\cos 110^\circ} = \frac{\frac{1}{2}}{-\frac{\sqrt{3}}{2}} = -\frac{1}{\sqrt{3}}$	د) $\cot 110^\circ$ $\cot 110^\circ = \frac{\cos 110^\circ}{\sin 110^\circ} = \frac{-\frac{1}{2}}{\frac{\sqrt{3}}{2}} = -\frac{1}{\sqrt{3}}$		
الف) $\sin \alpha = \frac{1}{\sqrt{2}}$ $\alpha = 45^\circ, 135^\circ$ یا $\alpha = \frac{\pi}{4}, \frac{3\pi}{4}$	ب) $\cos = \frac{\sqrt{2}}{2}$ $\alpha = 45^\circ, 315^\circ$ یا $\alpha = \frac{\pi}{4}, \frac{7\pi}{4}$	۴	
			۵

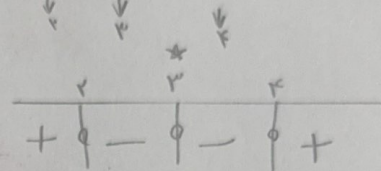


۶

$$6a) (x-2)(x-3)(x-4)$$

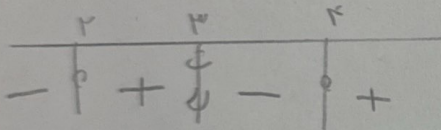


$$b) (x-2)(x-3)^2(x-4)$$

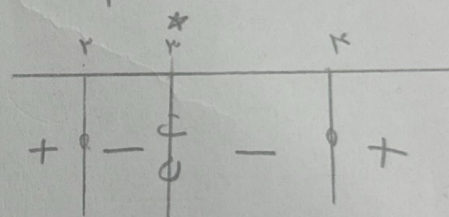


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$$6a) \frac{(x-2)(x-4)}{(x-3)}$$

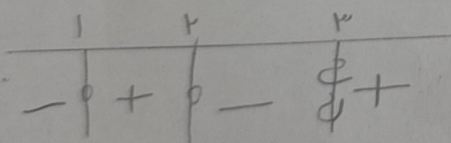


$$b) \frac{(x-2)(x-4)}{(x-3)^2}$$

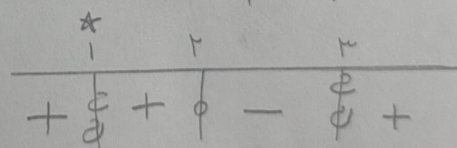


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$$7a) \frac{x^2-3x+2}{x-3} \Rightarrow \frac{(x-1)(x-2)}{(x-3)}$$

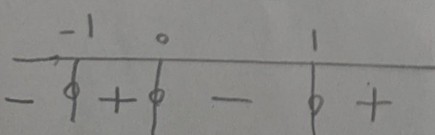


$$b) \frac{x^2-3x+2}{x^2-2x+3} \Rightarrow \frac{(x-1)(x-2)}{(x-1)(x-3)}$$



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$$8a) \frac{x^2-x^2}{x^2+x+2} \Rightarrow \frac{x^2(x-1)(x+1)}{x^2+x+2}$$



$$b) \frac{x^2+3x+2}{x^2+2x+3}$$

عبارت به انهای قانس تقاریر x شبیه است

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