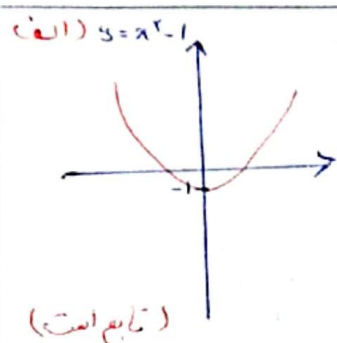


الف) $y_1^3 = 2x_1^2 - 1$ | $y_2^3 = 2x_2^2 - 1$
 $x_1 = x_2$
 $2x_1^2 - 1 = 2x_2^2 - 1 \Rightarrow y_1^3 = y_2^3$
 $y_1 = y_2$ (تابع است)

ب) $y_1^3 + y_1 = 2x_1^2 - 1$ | $y_2^3 + y_2 = 2x_2^2 - 1$
 $y_1^3 + y_1 = y_2^3 + y_2$
 $(y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2 + y_1 + y_2) = 0$
 $(y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2 + y_1 + y_2 + 1) = 0$
 $(y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2 + 1) = 0$
 $y_1 = y_2$ (تابع است)



ب) $|y_1 + y_2| = 2x_1^2 + 1$
 $x = 0 \Rightarrow |y_1 + y_2| = 1 \Rightarrow y_1 = \pm 1$
 $y_1 = y_2$ (تابع است)

ج) $y_1^3 = -2x_1^2 + 2x_1 - 1$
 $y_2^3 = -2x_2^2 + 2x_2 - 1$
 $x_1 = x_2 \Rightarrow y_1^3 = y_2^3$
 $y_1 = y_2$ (تابع است)

د) $(\sqrt{y})^3 - (\sqrt{y}) + 2 = 0$
 $\rightarrow y = (2 - \sqrt{y})^2$
 $y = 4 - 4\sqrt{y} + y$
 $0 = 4 - 4\sqrt{y}$
 $\sqrt{y} = 1 \Rightarrow y = 1$
 $y_1 = y_2 = 1$ (تابع است)

الف) $\tan \frac{\pi}{4} = \tan \frac{\pi}{4}$
 $\frac{\sin \frac{\pi}{4}}{\cos \frac{\pi}{4}} = \frac{\sin \frac{\pi}{4}}{\cos \frac{\pi}{4}}$
 $\rightarrow \frac{\frac{\sqrt{2}}{2}}{\frac{\sqrt{2}}{2}} = \frac{\frac{\sqrt{2}}{2}}{\frac{\sqrt{2}}{2}} = 1$

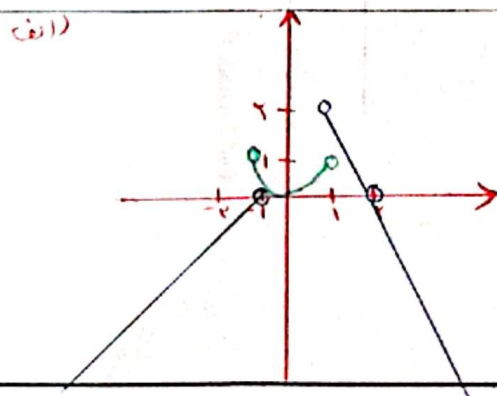
ب) $\cot \frac{\sqrt{\pi}}{4} = \cot \frac{\pi}{4}$
 $\frac{\cos \frac{\pi}{4}}{\sin \frac{\pi}{4}} = \frac{\cos \frac{\pi}{4}}{\sin \frac{\pi}{4}}$
 $\frac{\frac{\sqrt{2}}{2}}{\frac{\sqrt{2}}{2}} = \frac{\frac{\sqrt{2}}{2}}{\frac{\sqrt{2}}{2}} = 1$

ج) $\tan 135^\circ = \frac{\sin 135^\circ}{\cos 135^\circ}$
 $\rightarrow \frac{-1}{\frac{\sqrt{2}}{2}} = \frac{\frac{\sqrt{2}}{2}}{-\frac{\sqrt{2}}{2}}$
 $\frac{-1}{\frac{\sqrt{2}}{2}} = \frac{\frac{\sqrt{2}}{2}}{-\frac{\sqrt{2}}{2}}$
 $\frac{-1}{\frac{\sqrt{2}}{2}} = \frac{\frac{\sqrt{2}}{2}}{-\frac{\sqrt{2}}{2}}$

د) $\cot 180^\circ = \frac{\cos 180^\circ}{\sin 180^\circ}$
 $\frac{-1}{0}$ (تعریف نشده)

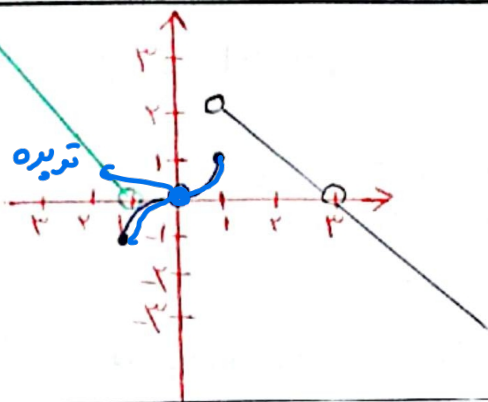
الف) $\sin \alpha = \frac{1}{2} \rightarrow \alpha = 30^\circ, 150^\circ$
 $\rightarrow \alpha = \frac{\pi}{6}, \frac{5\pi}{6}$

ب) $\cos \alpha = \frac{\sqrt{2}}{2} \rightarrow \alpha = 45^\circ, 315^\circ$
 $\rightarrow \alpha = \frac{\pi}{4}, \frac{7\pi}{4}$



ب)

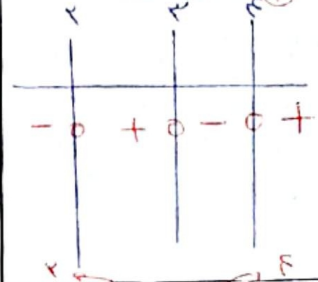
دراور



1.7.5

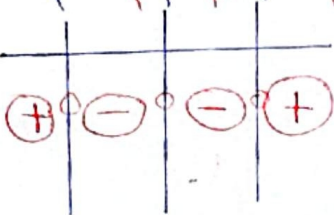
۶

الف) $(x-2)(x-3)(x-4)$



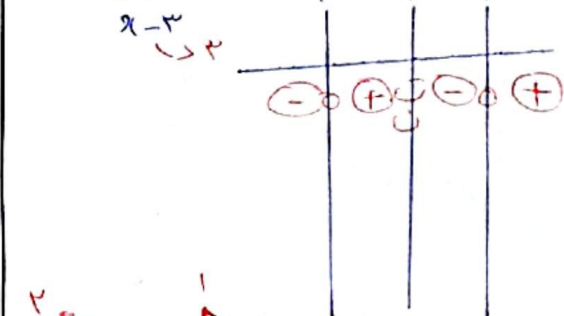
(۲) ✓

ب) $(x-2)(x-3)(x-4)(x-5)$



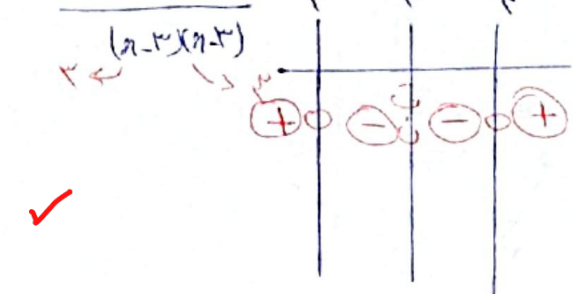
۷

الف) $\frac{(x-2)(x-4)}{x-3}$



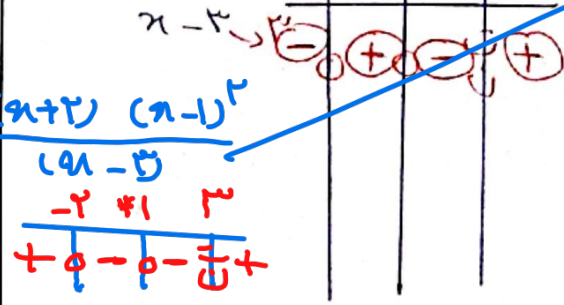
(۲) ✓

ب) $\frac{(x-2)(x-5)}{(x-3)(x-4)}$



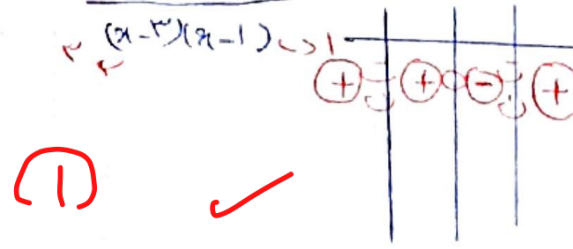
۸

الف) $\frac{(x-2)(x-1)}{x-3}$



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

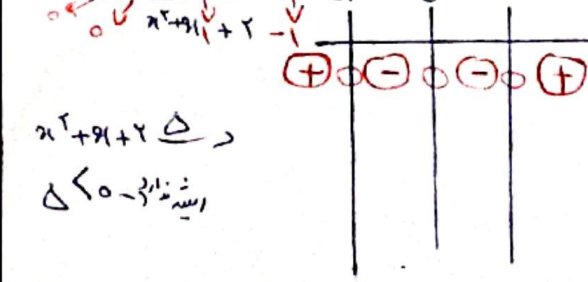
ب) $\frac{(x-4)(x-1)}{(x-3)(x-1)}$



۹

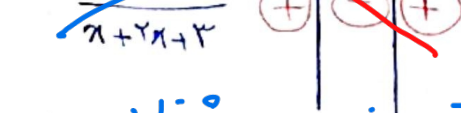
(۱) ✓

الف) $x \cdot x (x-1)(x+1)$



$x^2 + x + 2 \geq 0$
ریشه ندارد
 $\Delta < 0$

ب) $\frac{(x+1)(x+3)}{x+2x+3}$



صورت و مخرج هر دو ریشه ندارند
ریشه ندارند
 $x^2 + 2x + 3 \geq 0$
دو ریشه مثبت هستند

(۱)

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