

۱۹/۷۵
افزین

الف) $y^3 = 2x^2 - 1$

if $(x_1, y_1) \in f$
if $(x_2, y_2) \in f \} \begin{matrix} x_1 = x_2 \\ y_1 = y_2 \end{matrix}$

$y_1^3 = 2x_1^2 - 1$
 $y_2^3 = 2x_2^2 - 1$ } $x_1 = x_2 \rightarrow y_1^3 = y_2^3 \rightarrow y_1 = y_2$
تابع است ✓

الف) $y = x^2 - 1$ (رسم شکل)
تابع است ✓

ب) $|y| + xy = x^2 + 1$ مثال نقض
 $x=0 \rightarrow |y|=1 \rightarrow y=1$ تابع نیست X

ب) $y^3 + y = 3x^2 - 1$

$y_1^3 + y_1 = 3x_1^2 - 1$
 $y_2^3 + y_2 = 3x_2^2 - 1$ } $x_1 = x_2 \rightarrow y_1^3 + y_1 = y_2^3 + y_2$
 $y_1^3 - y_2^3 + y_1 - y_2 = 0$
 $(y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2 + 1) = 0$
 $y_1 - y_2 = 0 \rightarrow y_1 = y_2$ تابع است ✓

ج) $y^3 + x^3 = 2x - 1$

$y_1^3 + x_1^3 = 2x_1 - 1$
 $y_2^3 + x_2^3 = 2x_2 - 1$ } $x_1 = x_2 \rightarrow y_1^3 = y_2^3 \rightarrow y_1 = y_2$ تابع است ✓

د) $\sqrt[3]{y} + \sqrt[3]{x} = 2$ باید بارش های گفته شده حل شد!
 $\sqrt[3]{y} = 2 - \sqrt[3]{x} \rightarrow y = (2 - \sqrt[3]{x})^3$ تابع است ✓

الف) $\tan \frac{\pi}{3} (45^\circ) \rightarrow \frac{\frac{\sqrt{3}}{2}}{\frac{1}{2}} = \frac{2\sqrt{3}}{2} = \sqrt{3}$

ب) $\cot \frac{\sqrt{3}\pi}{4} (210^\circ) \rightarrow \frac{-\frac{\sqrt{3}}{2}}{-\frac{1}{2}} = \frac{-2\sqrt{3}}{-2} = \sqrt{3}$

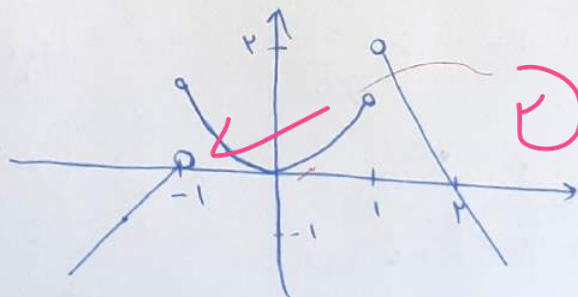
ج) $\tan 3\pi \rightarrow \frac{-\frac{1}{2}}{\frac{\sqrt{3}}{2}} = \frac{-2}{2\sqrt{3}} = -\frac{1}{\sqrt{3}}$

د) $\cot 110^\circ = \frac{-1}{\sqrt{3}}$ تعریف نشده X

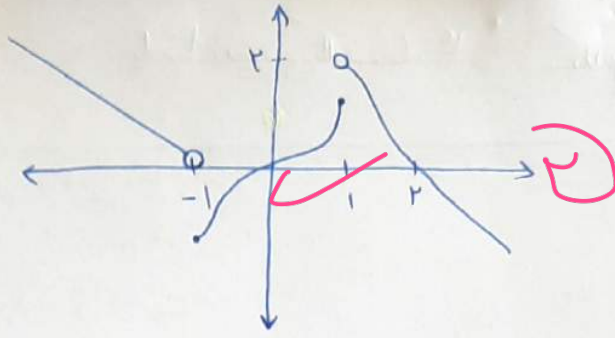
الف) $\sin \alpha = \frac{1}{2}$ | $\frac{\sqrt{3}}{2}$ | $\frac{-\sqrt{3}}{2}$ | $\frac{1}{2}$ | $\alpha = \frac{\pi}{6}, \frac{5\pi}{6}$

$\rightarrow \cos \alpha = \frac{\sqrt{2}}{2}$ | $\frac{\sqrt{2}}{2}$ | $\frac{\sqrt{2}}{2}$ | $\frac{-\sqrt{2}}{2}$ | $\alpha = \frac{\pi}{4}, \frac{7\pi}{4}$

$f(x) = \begin{cases} -x+6 & x > 1 \\ x^2 & -1 < x < 1 \\ x+1 & x < -1 \end{cases}$

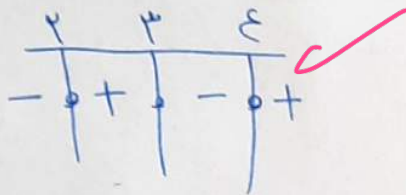


$$f(x) = \begin{cases} -x+3 & x > 1 \\ x^3 & -1 \leq x \leq 1 \\ -x-1 & x < -1 \end{cases}$$



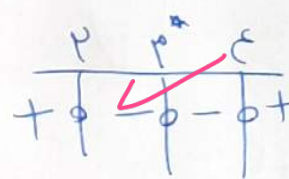
الف) $y = (x-2)(x-3)(x-4)$

2 3 4



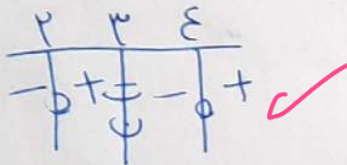
ب) $y = (x-2)(x-3)(x-4)$

2 3* 4



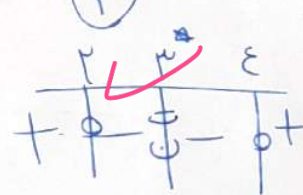
الف) $y = \frac{(x-2)(x-4)}{x-3}$

2 3 4



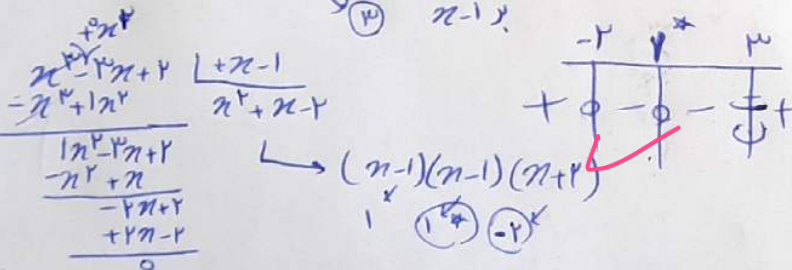
ب) $y = \frac{(x-2)(x-4)}{(x-3)^2}$

2 3* 4



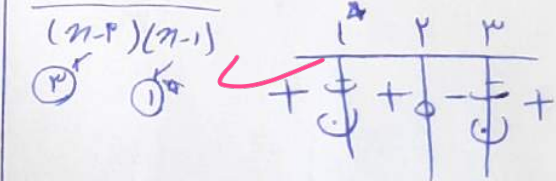
الف) $y = \frac{x^3 - 3x + 2}{x - 3}$

2 3 4



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

2 3 4



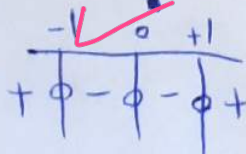
الف) $y = \frac{x^4 - x^2}{x^2 + x + 2}$

$\Delta = b^2 - 4ac = 1 - 4 \cdot 1 \cdot 2 = -7 < 0$

$x^4 - x^2 = 0$

$x^2(x^2 - 1) = 0$

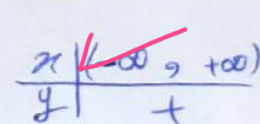
$x^2 = 0$



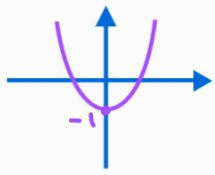
ب) $y = \frac{x^4 + 3x + 4}{x^2 + 2x + 3}$

$\Delta = b^2 - 4ac = 9 - 4 \cdot 1 \cdot 3 = -3 < 0$

$\Delta = b^2 - 4ac = 4 - 4 \cdot 1 \cdot 3 = -8 < 0$



خفا افتد صید با آن را قلم نر کند پس تا بومست ✓ $y = x^2 - 1$ رسم شد (الف- ۲)



تقریبیابی $y^3 + x^3 = 2n - 1$ (ج- ۲) $\rightarrow$

$$\begin{cases} y_1^3 + x_1^3 = 2n_1 - 1 \\ y_2^3 + x_2^3 = 2n_2 - 1 \end{cases}$$

اگر $x_1 = x_2$ $\rightarrow$ $y_1^3 = y_2^3 \rightarrow y_1 = y_2$ تا بومست ✓

اگر $x_1 \neq x_2$ $\rightarrow$ $-x_1^3 + 2n_1 - 1 = -x_2^3 + 2n_2 - 1$

تقریبیابی $\sqrt[3]{y} + \sqrt[3]{x} = 2$ (د- ۲) $\rightarrow$

$$\begin{cases} \sqrt[3]{y_1} + \sqrt[3]{x_1} = 2 \\ \sqrt[3]{y_2} + \sqrt[3]{x_2} = 2 \end{cases}$$

اگر $x_1 = x_2$ $\rightarrow$ $2 - \sqrt[3]{x_1} = 2 - \sqrt[3]{x_2} \rightarrow \sqrt[3]{y_1} = \sqrt[3]{y_2} \rightarrow y_1 = y_2$ تا بومست ✓

اگر $x_1 \neq x_2$ $\rightarrow$ $2 - \sqrt[3]{x_1} = 2 - \sqrt[3]{x_2}$

تا بومست ✓ $\sqrt[3]{y_1} = \sqrt[3]{y_2} \rightarrow y_1 = y_2$