

۱۹, ۲۵

الف) $y^3 = 2x^2 - 1$ $x = x_1$ $y = y_1$ $y^3 = y^3 \rightarrow y = y$ تابع ✓
 ۱) $y^3 = 2x^2 - 1$

و این معادله

۱, ۵

ب) $y^3 + y = 2x^2 - 1$ $x = x_1$ $y^3 + y = y^3 + y$ ✓
 ۱) $y^3 + y = 2x^2 - 1$

ادامه؟ ناقص

الف) $y = x^2 - 1$ $x = x_1$ $y = y_1$ تابع ✓
 ۱) $y = x^2 - 1$

ب) $|y| + xy = x^2 + 1$ $x = x_1$ $|y| = 1 \rightarrow y = \pm 1$ ✓

ج) $y^3 + 2x = 2x - 1$ $y^3 = -1$ $y = -1$ ✓
 ۱) $y^3 + 2x = 2x - 1$

الف) $\tan \frac{\pi}{3} = \tan 60^\circ$ 90° $\tan 45^\circ = \frac{1}{1} = 1$ ✓

ب) $\cot \frac{\pi}{4} = \cot 45^\circ$ 90° $\cot 45^\circ = \frac{1}{1} = 1$ ✓

ج) $\tan 45^\circ = \frac{1}{1} = 1$ 90° $\tan 45^\circ = \frac{1}{1} = 1$ ✓

د) $\cot 180^\circ = \frac{1}{0}$ 90° $\cot 180^\circ = \frac{1}{0}$ ✓

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

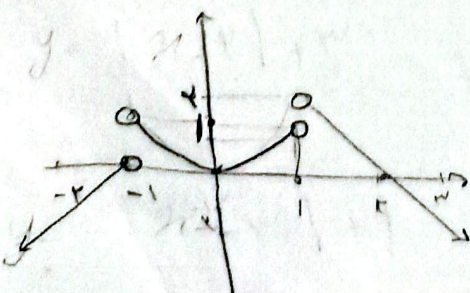
ب) $y = \sin x$

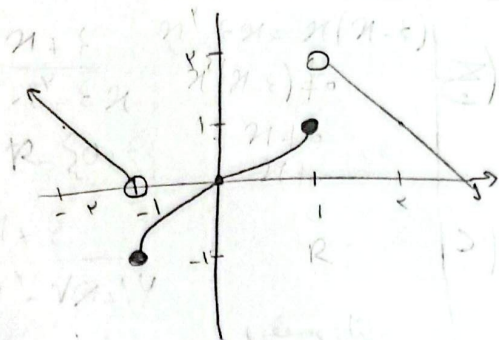
۲ ✓

ج) $\cos \alpha = \frac{\sqrt{3}}{2} \rightarrow 30^\circ, 150^\circ \rightarrow \frac{\pi}{6}, \frac{5\pi}{6}$

د) $y = \cos x$

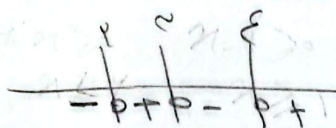
۳ ✓





Ⓟ ✓

الف) $y = (x-2)(x-3)(x-4)$



$y > 0 \Rightarrow (2, 3) \cup (3, 4)$
 $y < 0 \Rightarrow (-\infty, 2) \cup (4, +\infty)$

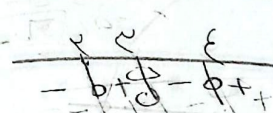
Ⓟ ✓

ب) $y = (x-1)(x-2)^2(x-3)$



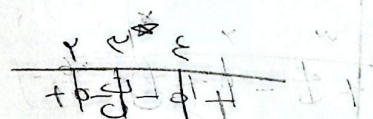
$y > 0 \Rightarrow (-\infty, 1) \cup (2, 3)$
 $y < 0 \Rightarrow (1, 2) \cup (3, +\infty)$

الف) $y = \frac{(x-2)(x-3)}{x-4}$



Ⓟ ✓

ب) $y = \frac{(x-2)(x-3)}{(x-4)^2}$

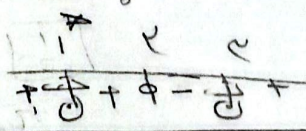


الف) $\frac{x^2 - 2x + 2}{x-2} = \frac{(x-1)(x+2)}{x-2}$

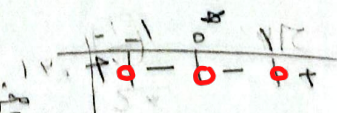
$\frac{x^2 - 2x + 2}{x-2} = \frac{(x-1)(x+2)}{x-2}$
 $\frac{x^2 - 2x + 2}{x-2} = \frac{(x-1)(x+2)}{x-2}$
 $\frac{-2x+2}{-2x+2} = \frac{-2(x-1)}{-2(x-1)} = 1$

Ⓟ ✓

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



الف) $y = \frac{x^2 - 2x + 2}{x^2 + 2x + 2} = \frac{x^2(x-1)(x+2)}{x^2(x+1)(x+2)}$



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

$y > 0 \Rightarrow (-\infty, +\infty)$

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ا ب ←

$$y_1^3 + y_1 = 3x_1^2 - 1$$

$$y_2^3 + y_2 = 3x_2^2 - 1 \xrightarrow{x_1 = x_2}$$

$$y_1^3 + y_1 = 3x_1^2 - 1$$

$$y_2^3 + y_2 = 3x_2^2 - 1$$

$$\rightarrow y_1^3 + y_1 = y_2^3 + y_2 \rightarrow$$

$$\rightarrow (y_1^3 - y_2^3) + (y_1 - y_2) = 0 \rightarrow (y_1 - y_2)(y_1^2 + y_2 y_1 + y_2^2) + (y_1 - y_2) = 0$$

$$\rightarrow (y_1 - y_2)(y_1^2 + y_2 y_1 + y_2^2 + 1) = 0$$

$$y_1 = y_2 \quad \checkmark \quad \text{تابع است} \rightarrow$$

$$y_1^2 + y_2 y_1 + y_2^2 + 1 = 0 \rightarrow \Delta = (y_2)^2 - 4(y_2^2 + 1) = -3y_2^2 + 4 \rightarrow \Delta < 0$$

ریشه ندارد ←