

۱۹/۵

الف) $y = 2x^2 \rightarrow x^2 + y^2 = 0 \rightarrow x = y = 0$ تابع $\checkmark$

ب) $|y| + x^2 = x + 3 \rightarrow x = 0 \rightarrow |y| = 3 \rightarrow y = -3, 3$ تابع $\checkmark$

ج) $\sqrt{x-5} + |y-2| = 0 \rightarrow x=5 \rightarrow |y-2|=0 \rightarrow y=2$ تابع $\checkmark$
 دستگاه معادلات

د) $x = \cos y \rightarrow x = 0 \rightarrow y = \frac{\pi}{2}, \frac{3\pi}{2}, \dots$ تابع $\checkmark$

الف) $y = \frac{x+5}{x^2-5x} \rightarrow x(x-5) \neq 0 \rightarrow D_f = \mathbb{R} - \{0, 5\}$ $\checkmark$

ب) $y = \frac{x+5}{x^2-7x+14} \rightarrow \Delta < 0 \rightarrow D_f = \mathbb{R}$ $\checkmark$

ج) $y = \frac{x+5}{x^2+x+5} \rightarrow \Delta < 0 \rightarrow D_f = \mathbb{R}$ $\checkmark$

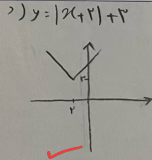
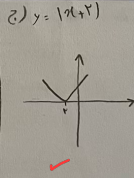
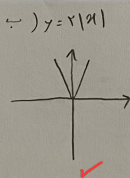
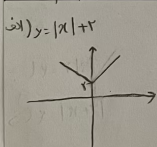
د) $y = \frac{x+5}{x^2-5x} \rightarrow x^2(x-5) \neq 0 \rightarrow D_f = \mathbb{R} - \{0, 5, 2, 2\}$ $\checkmark$

الف) $y = \sqrt{x-2} + \sqrt{x-2} \rightarrow x-2 \geq 0 \text{ و } x-2 \geq 0 \rightarrow D_f = [2, \infty)$ $\checkmark$

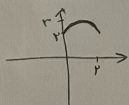
ب) $y = \frac{3x+1}{x^2+1} \rightarrow D_f = \mathbb{R}$ $\checkmark$

ج) $y = \frac{\sqrt{x-2}}{x-5} \rightarrow x-2 \geq 0 \text{ و } x \neq 5 \rightarrow D_f = [2, 5) \cup (5, \infty)$ $\checkmark$

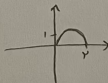
د) $y = \frac{2x+3}{|x|+x^2} \rightarrow |x|+x^2 \neq 0 \rightarrow D_f = \mathbb{R} - \{0\}$ $\checkmark$



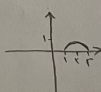
الف) $f(x) + 2$



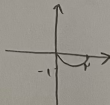
ب) $2f(x)$



ج) $f(x-1)$



د) $-f(x)$



الف) $y = (x-2)(x-3)(x-4)$

$$\begin{array}{c|ccc} & 2 & 3 & 4 \\ \hline & - & + & - & + \end{array}$$

ب) $y = (x-2)(x-3)(x-4)$

$$\begin{array}{c|ccc} & 2 & 3 & 4 \\ \hline & + & - & + & - & + \end{array}$$

Ⓟ ✓

الف) $y = \frac{(x-2)(x-4)}{x-3}$

$$\begin{array}{c|ccc} & 2 & 3 & 4 \\ \hline & - & + & - & + \end{array}$$

ب) $y = \frac{(x-2)(x-4)}{(x-3)^2}$

$$\begin{array}{c|ccc} & 2 & 3 & 4 \\ \hline & + & - & + & - & + \end{array}$$

Ⓟ ✓

الف) $y = \frac{x^3 - 3x^2 + 2x}{x - 3} \rightarrow \frac{(x-1)(x^2 + x - 2)}{x - 3} \rightarrow \frac{(x-1)(x+2)(x-1)}{x - 3}$

$$\begin{array}{c|ccc} & -2 & 1 & 3 \\ \hline & + & - & - & + \end{array}$$

ب) $y = \frac{x^3 - 3x^2 + 2x}{x^2 - 5x + 6} \rightarrow \frac{(x-1)(x-2)}{(x-1)(x-3)}$

$$\begin{array}{c|ccc} & 1 & 2 & 3 \\ \hline & + & + & - & - & + \end{array}$$

Ⓟ ✓

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

$$\begin{array}{c|ccc} & -1 & 0 & 1 \\ \hline & + & - & - & + \end{array}$$

ب) $y = \frac{x^3 + 3x^2 + 2x}{x^3 + 2x^2 + 3x} \rightarrow \Delta < 0$

المنحني متباين

Ⓟ ✓

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

$$\begin{array}{c|ccc} & -1 & 0 & 1 \\ \hline & + & - & - & + \end{array}$$

$D_f = (-\infty, -1) \cup (0, 1) \cup (1, \infty)$

ب) $\sqrt{\frac{x^3 - 16}{x^3 - 8x + 4}} \rightarrow \frac{(x-4)(x+4)}{(x-1)(x-4)}$

$$\begin{array}{c|ccc} & -4 & 1 & 4 \\ \hline & + & - & - & + \end{array}$$

$D_f = (-\infty, -4) \cup (1, 4) \cup (4, \infty)$

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