

(1)

تابع نیست. مثال نقص با $x = -1$ $y'' - x = 2x'' \rightarrow y'' = \frac{2x'' + x}{x(2x+1)} \rightarrow x = -1$

ب) $|y| + x'' = x + 3$

2.) $\sqrt{x-4} + |y-2| = 0$

3.) $x = \cos y \rightarrow x = 0 \rightarrow y = 90, 270$ تابع نیست.

(2)

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

$$\begin{array}{c|c|c} -4 & 0 & 4 \\ \hline - & + & - \\ \hline 0 & + & 0 \end{array} \quad \begin{array}{c} - \\ + \end{array}$$

$D_f = [-4, 0) \cup (4, +\infty)$

ب) $y = \frac{x+4}{x^2-4x+4}$

2.) $y = \frac{x+4}{\frac{x^2+x+4}{\Delta < 0 \text{ صفر نشود}}}$

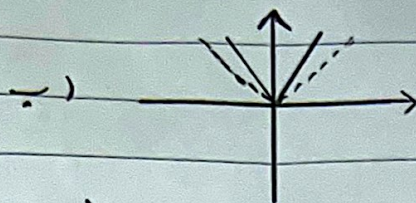
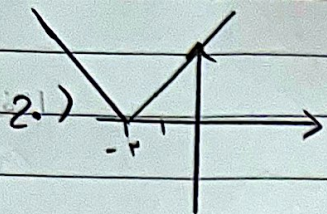
$$\begin{array}{c|c} -4 & \\ \hline - & + \end{array}$$

$D_f = [-4, +\infty)$

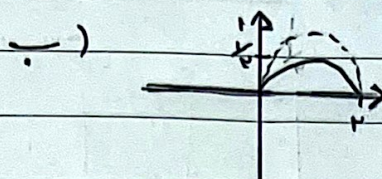
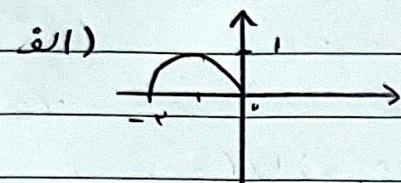
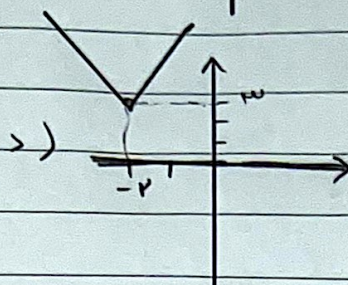
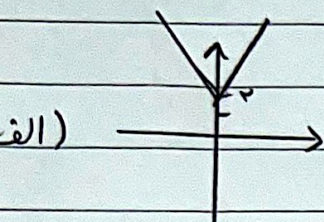
3.) $y = \frac{x+4}{x^2-4x} = \frac{x+4}{x^2(x-4)(x+4)}$

$$\begin{array}{c|c|c|c|c} -4 & -2 & 0 & +4 & \\ \hline - & + & - & + & - \\ \hline 0 & + & 0 & - & 0 \end{array} \quad \begin{array}{c} - \\ + \end{array}$$

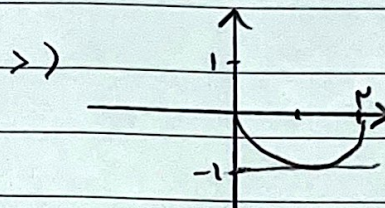
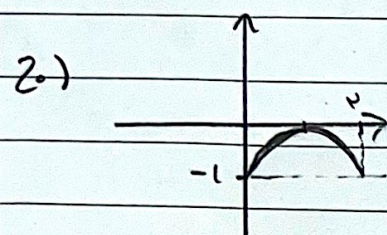
$D_f = [-4, -2) \cup (2, +\infty)$



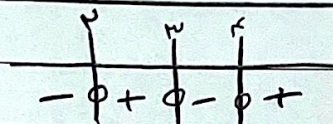
(4)



(5)

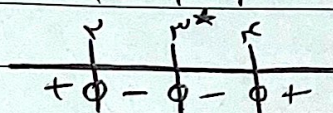


الف) $y = (x-2)(x-3)(x-4)$

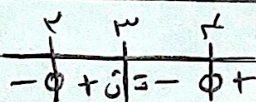


(6)

ب) $y = (x-2)(x-3)^2(x-4)$

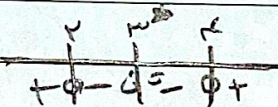


الف) $y = \frac{(x-2)(x-4)}{x-3}$



(7)

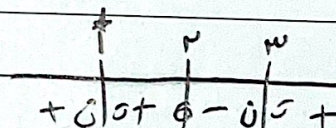
ب) $y = \frac{(x-2)(x-4)}{(x-3)^2}$



الف) $y = \frac{x^2-3x+2}{x-3}$

(8)

ب) $y = \frac{x^2-3x+2}{x^2-4x+3} = \frac{(x-2)(x-1)}{(x-1)(x-3)}$



$$\text{جواب 1) } y = \frac{n^4 - n^2}{n^4 - n + 2} = \frac{(n-1)(n+1)n^2}{\underline{n^4 - n + 2}}$$

بسط و جداسازی

$$\begin{array}{c} -1 \quad 0 \quad 1 \\ + \quad - \quad - \quad + \end{array}$$

(9)

$$\text{جواب 2) } y = \frac{n^4 + n + 2}{n^4 + 2n + 2}$$