۱۸,۵

(۲)

الف) $y_1^3 = 2x^2 + x$
$y_2^3 = 2x^2 + x$ $\} \to y_1^3 = y_2^3 \to y_1 = y_2$ تابع است ✓

ب) $|y_1| = -x^2 + x + 3$
$|y_2| = -x^2 + x + 3$ $\} \to |y_1| = |y_2| \to y_1 = \pm y_2$ تابع نیست ✓

ج) $\sqrt{x-4} = 0 \to x - 4 = 0 \to x = 4$
$|y-2| = 0 \to y - 2 = 0 \to y = 2$ تابع است ✓

د) $x = 0 \longrightarrow \cos y = 0 \to y = k\pi + \frac{\pi}{2}$ $(90^\circ, 270^\circ)$ ✓ تابع نیست

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(۲)

الف) $\frac{x+4}{x(x-4)} = y$ $D_f = R - \{0, 4\}$ ✓

ب) $\frac{x+4}{x^2 - 7x + 16} \to \Delta < 0$ $D_f = R$ ✓

الناسیلی (دهم) ضرب B

ج) $\frac{x+4}{x^2 + x + 4} \to \Delta < 0$ $D_f = R$ ✓

د) $y = \frac{x+4}{x^2(x^2-4)} = x^2(x-2)(x+2)$ $D_f = R - \{0, 2, -2\}$ ✓

---

(۲)

الف) $6 - x \geq 0 \to x \leq 6$
$x - 2 \geq 0 \to x \geq 2$ $D_f = [2, 6]$ ✓

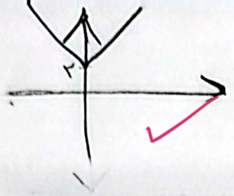
ب) $x^2 \neq -1$ $D_f = R$ ✓

ج) $x \neq 4$
$x - 2 \geq 0 \to x \geq 2$ $D_f = [2, +\infty) - \{4\}$ ✓

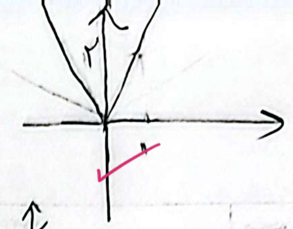
د) $|x| \neq -x^2$ ✓ $D_f = R - \{0\}$

۲

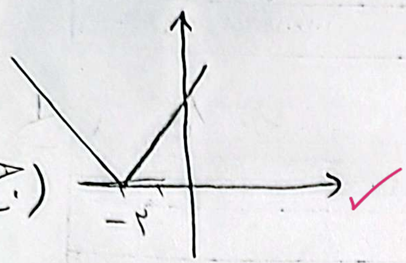
الف)



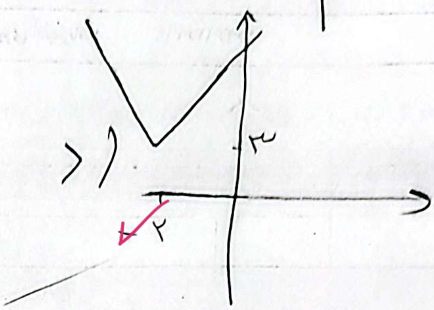
ب)



ج)



د)



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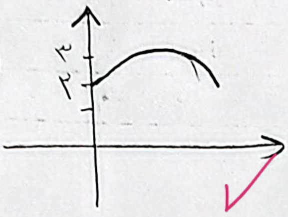
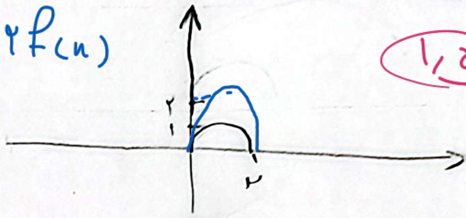
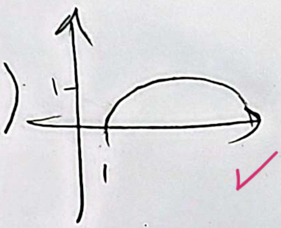
الف)



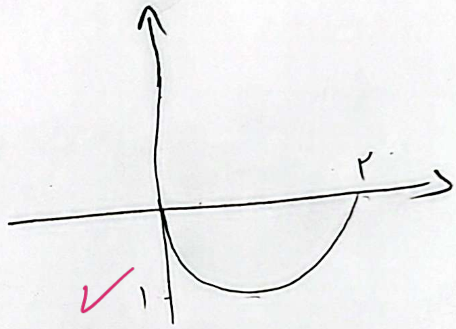
ب) $2f(x)$



ج)



د)



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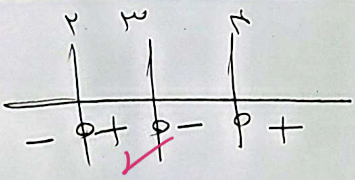
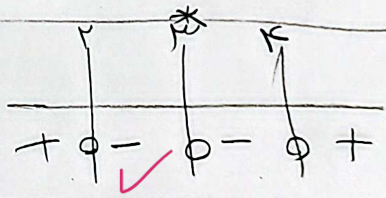
الف)



ب)



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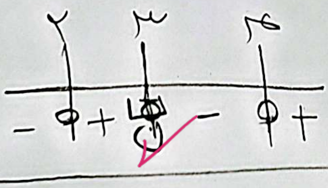
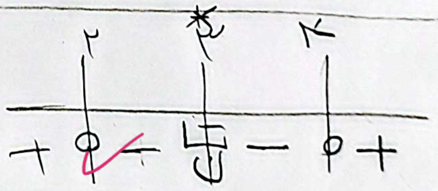
الف)



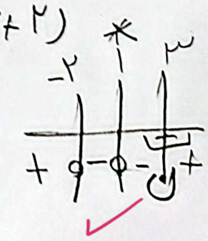
ب)



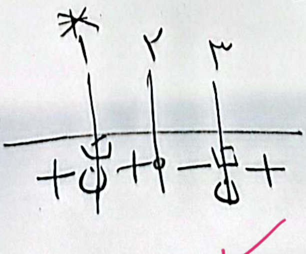
الف) جمع ضرایب برابر صفر است
بر $x-1$ بخش پذیر است

$$x^3 - 3x + 2 \;\big|\; x-1$$
$$-x^3 + x^2$$
$$x^2 - 3x + 2$$
$$x^2 + x - 2 \} \quad (x-1)(x+2)$$

$$x^2 - 3x + 2$$
$$-x^2 + x$$
$$-2x + 2$$
$$+2x - 2$$



ب) $\dfrac{(x-2)(x-1)}{(x-3)(x+1)}$



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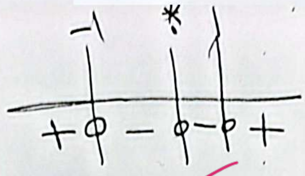
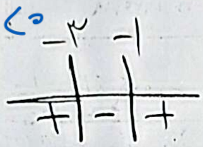
(۱)

الف) $\dfrac{x^2(x-1)(x+1)}{x^2+x+2}$



ب) عبارت تجزیه نشود

$\dfrac{(x+3)(x+1)}{x^2+2x+3} \rightarrow \Delta < 0$

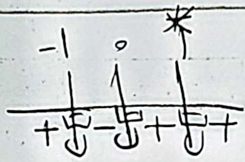


x^2+3x+4

(۲)

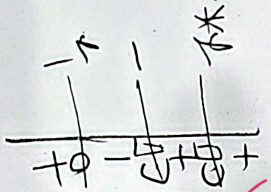
الف) $\dfrac{x^3-1}{x^3-x} \geq 0$

$x(x-1)(x+1)$



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

ب) $\dfrac{(x-2)(x+2)}{(x-1)(x-2)}$



$D_f = (-\infty, -2] \cup (1, 2) \cup (2, +\infty)$