نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ...3... کلاس ...دختر B... کلاسی .....

۱۷

۱

الف) $y_1^3 = 2x_1^2 + x$, $y_2^3 = 2x^2 + x$ $\Rightarrow y_1^3 = y_2^3 \Rightarrow y_1 = y_2$ ✓ تابع است (۲)

ب) چون y داخل قدر مطلق است دو مقدار + و − گرفته تابع نیست ✓ مثال نقض $x=1 \rightarrow |y|=3 \rightarrow y=\pm 3$

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

د) $x=\frac{1}{2} \Rightarrow \cos y = \frac{1}{2}$ $y = 60^\circ + 360^\circ$ ✓

۲

الف) $x^2 - 4x \neq 0$ (۱/۵)

$x(x-4) \neq 0 \Rightarrow x \neq 0, 4$

$D_f = (-\infty, 0) \cup (4, +\infty)$ $D_f \subset R - \{0, 4\}$ $\cup (0, 4)$

ب) $D_f \subset R$ ✓

ج) $D_f \subset R$

د) $x^4 - 4x^2 \neq 0$

$x^2(x+2)(x-2) \neq 0 \Rightarrow x \neq 0, -2, 2$

$D_f = R - \{0\} - \{-2\} - \{2\}$ ✓

۳

الف) $4 - x \geq 0 \Rightarrow 4 \geq x$, $x - 2 \geq 0 \Rightarrow x \geq 2$ $\Big\} D_f = [2, 4]$ ✓ (۱/۵)

ب) $x^2 + 1 \neq 0 \Rightarrow D_f = (-\infty, +\infty)$ ✓

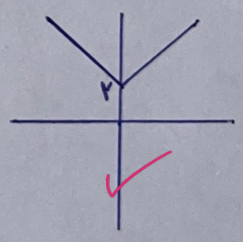
ج) $x - 2 \geq 0 \Rightarrow x \geq 2$, $x - 4 > 0 \Rightarrow x > 4$ $\Big\} D_f = (4, +\infty)$

چرا؟ $x \neq 4$ $D_f \subset [2, +\infty) - \{4\}$

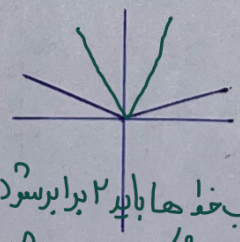
د) $|x| + x^2 \neq 0 \Rightarrow x \neq 0 \Rightarrow D_f = (-\infty, 0) \cup (0, +\infty)$ ✓

۴ (۱/۵)

الف)

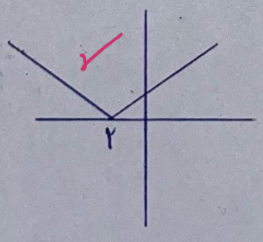


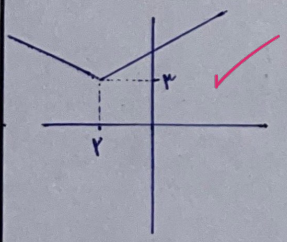
ب)



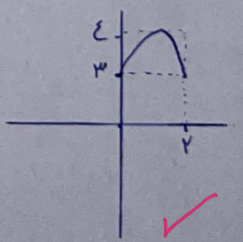
شیب خط‌ها باید ۲ برابر شود یعنی شکل شبیه‌تر شود

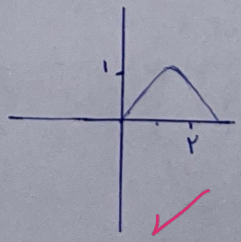
ج)

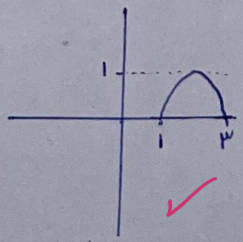


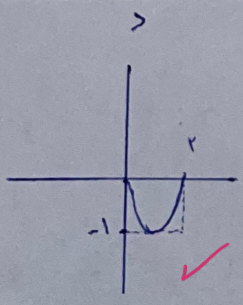


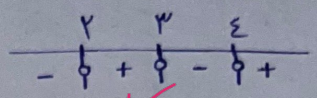
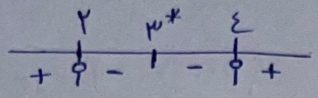
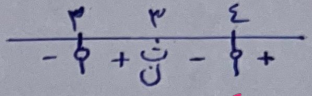
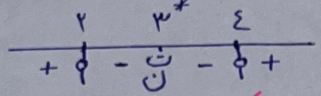
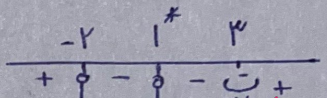
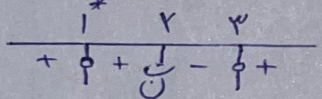
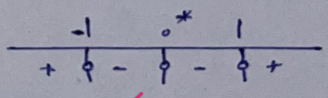
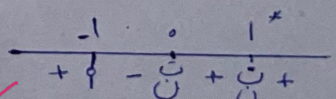
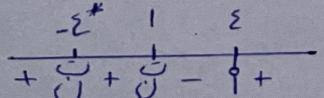
۵ (۲)









۶ (۲)	الف) 	ب) 
۷ (۲)	الف) 	ب) 
۸ (۲)	الف) $\frac{(x-1)^2(x+2)}{x-3}$ 	ب) $\frac{(x-1)(x-2)}{(x-4)(x-1)}$  $\Delta = b^2 - 4ac$ X
۹ (۱)	الف) $\frac{x^2(x+1)(x-1)}{x^2+x+2}$ 	ب) $\Delta = b^2+4ac$ $9+14=25$ $\frac{-b+\sqrt{\Delta}}{2a} \Rightarrow \frac{-3\pm5}{2} = \begin{cases} 1 \\ -4 \end{cases} \Rightarrow x=1$ $\Delta = 4+12=16$ $\frac{-2\pm4}{2}\begin{cases} 1 \\ -3 \end{cases}$ $\frac{x^2+3x+4}{x^2+2x+3} \rightarrow \Delta<0$ همواره مثبت است $\rightarrow \Delta<0$
۱۰ (۲)	الف) $\frac{(x^2+x+1)(x-1)}{x(x+1)(x-1)}$  $Df = (-\infty,-1] \cup (0,1) \cup (1,+\infty)$	ب) $\frac{(x+4)(x-4)}{(x-4)(x-1)}$  $Df = (-\infty,4) \cup (-4,1) \cup [4,+\infty)$