

نام و نام خانوادگی علی حسینیان پاسخنامه تشریحی تکلیف شماره ۵۳ کلاس پسر A

الف) تابع نیست $y^2 = 2x^2 + x \Rightarrow y = \pm \sqrt{2x^2 + x}$

ب) تابع است $|y| = x + 2 - x^2 \Rightarrow y = \pm (x + 2 - x^2)$

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

د) تابع است $\Rightarrow \dots, 7^2, 6, 3, 0, y=0$ اگر $x=1 \rightarrow$

الف) $x^2 - 4x = 0 \Rightarrow x(x-4) = 0 \Rightarrow x=0$ و $x=4 \Rightarrow D_f = \mathbb{R} - \{0, 4\}$

ب) $x^2 - 7x + 12 = 0 \Rightarrow (x-3)(x-4) = 0 \Rightarrow x=3$ و $x=4 \Rightarrow D_f = \mathbb{R} - \{3, 4\}$

ج) $\Delta = 1 - 16 = -15 \Rightarrow \Delta < 0$ و $x^2 > 0 \Rightarrow x^2 + x + 4 > 0 \Rightarrow D_f = \mathbb{R}$

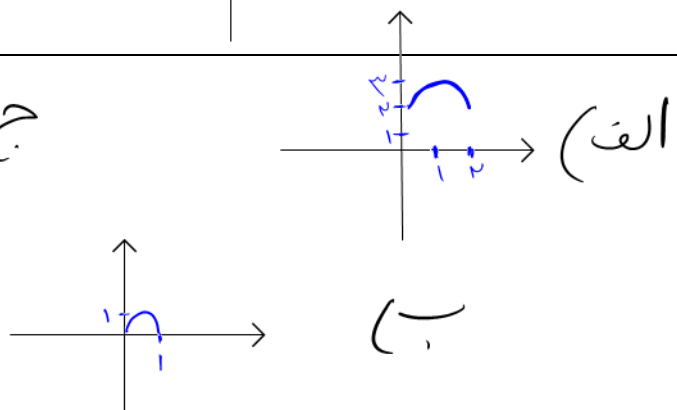
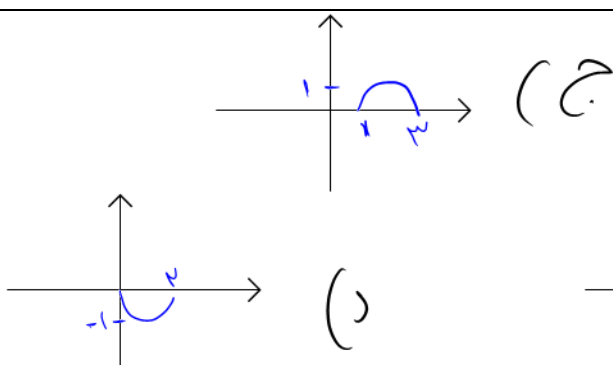
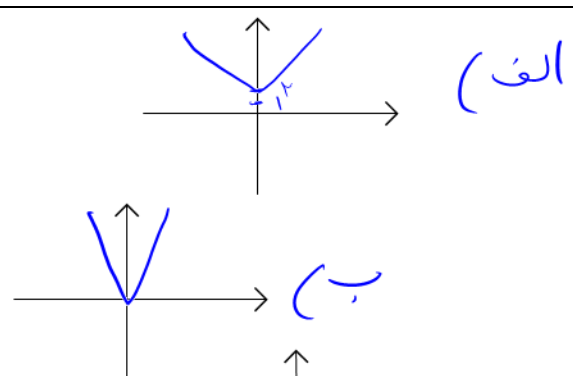
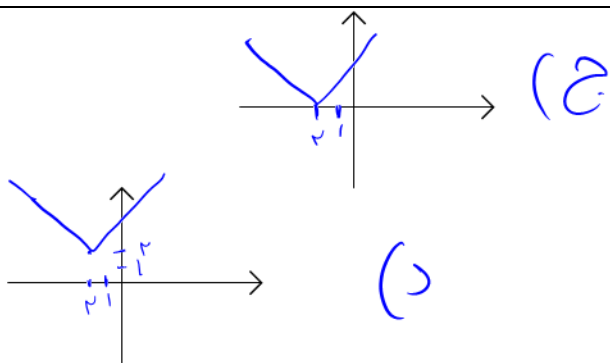
د) $x^3 - 9x^2 = 0 \Rightarrow x^2(x-9) = 0 \Rightarrow x=0$ و $x=9 \Rightarrow D_f = \mathbb{R} - \{0, 9\}$

الف) $4-x \geq 0 \Rightarrow 4 \geq x$ و $x-2 \geq 0 \Rightarrow x \geq 2 \Rightarrow D_f = [2, 4]$

ب) $x^2 + 1 \rightarrow$ همیشه مثبت $\Rightarrow D_f = \mathbb{R}$

ج) $x-2 \geq 0 \Rightarrow x \geq 2$ و $x-4=0 \Rightarrow x=4 \Rightarrow D_f = [2, 4) \cup (4, +\infty)$

د) $x^2 + x \geq 0 \Rightarrow x(x+1) \geq 0 \Rightarrow \frac{-1 \pm \sqrt{1+0}}{2} = -1, 0 \Rightarrow D_f = (-\infty, -1] \cup [0, +\infty)$



الف) $x^2 = 4, 3, 2$ ب) $x^2 = 4, 3, 2$	$\begin{array}{c} 2 \quad 3 \quad 4 \\ - \quad \quad + \quad \quad - \quad \quad + \\ \hline \end{array} \quad (2, 3) \cup (4, +\infty) \oplus$ $(-\infty, 2) \cup (3, 4) \ominus \quad \{2, 3, 4\} \odot$ $\begin{array}{c} 2 \quad 3^* \quad 4 \\ + \quad \quad - \quad \quad - \quad \quad + \\ \hline \end{array} \quad (-\infty, 2) \cup (4, +\infty) \oplus$ $(2, 3) \cup (3, 4) \ominus \quad \{2, 3, 4\} \odot$	٦
الف) $x^2 = 1, 2$ ریشه مضرب = 3 ب) $x^2 = 2, 3$ ریشه مضرب = 4, 4	$\begin{array}{c} 1 \quad 2 \quad 3 \\ - \quad \quad + \quad \quad - \quad \quad + \\ \hline \end{array} \quad (1, 2) \cup (3, +\infty) \oplus$ $(-\infty, 1) \cup (2, 3) \ominus \quad \{1, 2\} \odot$ $\begin{array}{c} 2 \quad 3^* \quad 4 \\ + \quad \quad - \quad \quad - \quad \quad + \\ \hline \end{array} \quad (-\infty, 2) \cup (4, +\infty) \oplus$ $(2, 3) \cup (3, 4) \ominus \quad \{2, 3\} \odot$	٧
الف) $\frac{x^3 - 3x + 3}{x - 3} = \frac{(x-1)^2(x+2)}{x-3}$ ب) $\frac{x^3 - 3x + 2}{x^2 - 4x + 3} = \frac{(x-2)(x-1)}{(x-3)(x-1)}$	$\begin{array}{c} -2 \quad 1 \quad 3 \\ + \quad \quad - \quad \quad - \quad \quad + \\ \hline \end{array} \quad (-\infty, -2) \cup (3, +\infty) \oplus$ $(2, 1) \cup (1, 3) \ominus \quad \{-2, 1\} \odot$ $\begin{array}{c} 1^* \quad 2 \quad 3 \\ + \quad \quad + \quad \quad - \quad \quad + \\ \hline \end{array} \quad (-\infty, 2) \cup (3, +\infty) \oplus$ $\{2\} \odot \quad (2, 3) \ominus$	٨
الف) $\frac{x^4 - x^2}{x^2 + 2x + 2} = \frac{x^2(x-1)(x+1)}{x^2 + 2x + 2}$ ب) $\frac{x^2 + 2x + 4}{x^2 + 2x + 3} \rightarrow$	$\begin{array}{c} -1 \quad 0^* \quad 1 \\ + \quad \quad - \quad \quad - \quad \quad + \\ \hline \end{array} \quad (-\infty, -1) \cup (1, +\infty) \oplus$ $(-1, 0) \cup (0, 1) \ominus \quad \{-1, 0, 1\} \odot$ $\Rightarrow$ هر دو ریشه ندارد $\mathbb{R} \oplus$	٩
الف) $\frac{x^3 - 1}{x^3 - x} \geq 0 \rightarrow \frac{(x-1)(x^2 + x + 1)}{(x(x-1)(x+1))} \geq 0 \rightarrow \frac{x^2 + x + 1}{x(x+1)} \geq 0$ ب) $\frac{x^3 - 1}{x^3 - 2x + 4} \geq 0 \rightarrow \frac{(x-1)(x^2 + x + 1)}{(x-1)(x-4)} \geq 0$	$D_f = (-\infty, -1) \cup (1, 0) \cup (1, +\infty)$ $\begin{array}{c} -4 \quad 1 \quad 4^* \\ + \quad \quad - \quad \quad + \quad \quad + \\ \hline \end{array}$ $D_f = (-\infty, -4] \cup (1, 4) \cup (4, +\infty)$	١٠