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| <p>نام و نام خانوادگی ..... <u>علی حسینیان</u> ..... پاسخنامه تشریحی تکلیف شماره ۴۰۴ ..... کلاس ..... <u>پسر - B</u> .....</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ۱ |
| <p><math>f(x) = \sqrt{(a-2)x^2 + ax + b}</math> <math>D_f = [3, +\infty) \rightarrow</math> مضاعف نیست! چون مضاعف دایره دارد در این موقعیت!<br/> <math>x=3 \Rightarrow (a-2)x^2 + ax + b = c(x-3) \Rightarrow a=2</math><br/> <math>\rightarrow 2x+b = cx-3c \Rightarrow c=2 \Rightarrow b=-6</math></p> <p><u><math>f(x) = \sqrt{2x-6}, b=-6</math></u></p>                                                                                                                                                                                                                                                             | ۲ |
| <p><math>f(x) = \sqrt{x^2 + 2x + 2 - m^2}</math> <math>D_f = \mathbb{R} \Rightarrow \Delta = 0 \rightarrow 4x^2 - 4 + 4m^2 = 0 \rightarrow x^2 - 1 + m^2 = 0</math><br/> <math>(x + \frac{a}{2})(x + \frac{b}{2}) = 0 \rightarrow \frac{a+b}{2} = -1 \rightarrow ab = [0, +\infty) \Rightarrow m^2 = [2, +\infty) \Rightarrow m = \begin{cases} [2, +\infty) \\ [-2, 0] \end{cases} \Rightarrow \Delta = 4 - (-4) = 8</math></p>                                                                                                                                                                                         | ۳ |
| <p><math>f(x) = \frac{\sqrt{4-x^2}}{[x] + [-x] + 1}</math> <math>4-x^2 \geq 0 \rightarrow -2 \leq x \leq 2</math><br/> <math>[x] + [-x] + 1 \neq 0 \Rightarrow [x] + [-x] \neq -1 \Rightarrow x \in \mathbb{Z}</math></p> <p><math>\Rightarrow x = \{x / x = [-2, 2], x \in \mathbb{Z}\} \hookrightarrow -2, -1, 0, 1, 2</math> <u><math>\omega</math></u></p>                                                                                                                                                                                                                                                           | ۴ |
| <p>الف) <math>y = \sqrt{x^3 + 3x^2}</math> <math>x^3 + 3x^2 \geq 0</math> <math>x^2(x+3) \geq 0</math> <math>\frac{-3}{-} \frac{*}{+} \frac{0}{+}</math><br/> <math>D_f = [-3, +\infty)</math> <math>\leq</math><br/> <math>b) y = \sqrt{\frac{(x^2-1)(x^3-3x^2)}{x^3-1}}</math> <math>\rightarrow (x^2-1)(x^3-3x^2)</math> <math>x^3-1 \neq 0 \rightarrow x \neq 1</math><br/> <math>\hookrightarrow \frac{-1}{+} \frac{*}{-} \frac{*}{-} \frac{1}{-} \frac{3}{-} \frac{0}{+}</math> <math>D_f = (-\infty, -1] \cup \{0\} \cup [3, +\infty)</math></p>                                                                  | ۵ |
| <p>الف) <math>y = \sqrt{ x-2 -3}</math> <math> x-2 -3 \geq 0</math> <math> x-2  \geq 3 \rightarrow x \geq 2 \rightarrow x-2 \geq 3 \Rightarrow x \geq 5</math><br/> <math>\hookrightarrow x \leq 2 \rightarrow 2-x \geq 3 \Rightarrow -1 \geq x</math> <math>\Rightarrow D_f = (-\infty, -1] \cup [5, +\infty)</math></p> <p>ب) <math>y = \sqrt{4- 2-x }</math> <math>4- 2-x  \geq 0 \rightarrow 4 \geq  2-x  \rightarrow x \leq 2 \rightarrow 4 \geq 2-x \rightarrow x \geq -2</math><br/> <math>\hookrightarrow x \geq 2 \rightarrow 4 \geq x-2 \rightarrow 6 \geq x</math> <math>\Rightarrow D_f = [-2, 6]</math></p> | ۵ |

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| <p>الف) <math>y = \sqrt{1-x x }</math> <math>1-x x  \geq 0 \rightarrow 1 \geq x x  \rightarrow \begin{matrix} x \geq 0 \\ x \leq 0 \end{matrix} \rightarrow \begin{matrix} 1 \geq x^2 \\ 1 \geq -x^2 \end{matrix} \Rightarrow D_f = [-1, 1]</math></p> <p>ب) <math>y = \frac{1}{\sqrt{3- x-5 }-1}</math> <math>\begin{matrix} 3- x-5  \geq 0 \rightarrow 3 \geq  x-5  \rightarrow x \geq 0 \rightarrow 3 \geq x-5 \rightarrow 8 \geq x \\ \hookrightarrow x \leq 0 \rightarrow 3 \geq 5-x \rightarrow x \geq 2 \end{matrix} \Rightarrow \{2, 8\}</math></p> <p><math>\sqrt{3- x-5 }-1 \neq 0 \Rightarrow \sqrt{3- x-5 } \neq 1 \Rightarrow 3- x-5  \neq 1 \Rightarrow  x-5  \neq 2 \Rightarrow x \neq \{3, 7\}</math></p> <p><math>\Rightarrow D_f = [2, 8] - \{3, 7\}</math></p>                                                                                                                                                                                                                                                               | <p>٦</p>  |
| <p>الف) <math>y = \frac{\sin^2 x - 1}{\cos x}</math> <math>\cos x \neq 0 \Rightarrow x \neq \{k\pi + \frac{\pi}{2}\} \Rightarrow D_f = \mathbb{R} - \{k\pi + \frac{\pi}{2}\}</math></p> <p>ب) <math>y = \frac{\cos x}{2\cos x - 1}</math> <math>2\cos x - 1 \neq 0 \Rightarrow 2\cos x \neq 1 \Rightarrow \cos x \neq \frac{1}{2} \Rightarrow x \neq \{k\pi + \frac{\pi}{3}, k\pi + \frac{2\pi}{3}\}</math></p> <p><math>\Rightarrow D_f = \mathbb{R} - \{k\pi + \frac{\pi}{3}, k\pi + \frac{2\pi}{3}\}</math></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <p>٧</p>  |
| <p>الف) <math>y = \frac{x+3}{ 2x+1 - x+3 }</math> <math> 2x+1  -  x+3  \neq 0,  2x+1  \neq  x+3  \rightarrow 2x+1 \neq x+3 \Rightarrow x \neq 2</math><br/> <math>\hookrightarrow -2x-1 \neq x+3 \Rightarrow -x \neq 4 \Rightarrow x \neq -4</math><br/> <math>\hookrightarrow -2x-1 \neq -x-3 \Rightarrow x \neq 2</math><br/> <math>\hookrightarrow 2x+1 \neq -x-3 \Rightarrow 3x \neq -4 \Rightarrow x \neq -\frac{4}{3}</math></p> <p><math>D_f = \mathbb{R} - \{-\frac{4}{3}, 2\}</math></p> <p>ب) <math>y = \sqrt{ 2x+1 - x+3 }</math> <math>\rightarrow  2x+1 - x+3  \geq 0 \Rightarrow  2x+1  \geq  x+3 </math><br/> <math>\begin{matrix} x \leq -2 \rightarrow -2x-1 \geq -x-3 \rightarrow x \geq -2 \\ -2 \leq x \leq -\frac{1}{2} \rightarrow -2x-1 \geq x+3 \rightarrow -x \geq 4 \rightarrow x \leq -4 \\ x \geq -\frac{1}{2} \rightarrow 2x+1 \geq x+3 \rightarrow x \geq 2 \end{matrix}</math></p> <p><math>D_f = (-\infty, -4] \cup [-2, -\frac{4}{3}] \cup [2, +\infty) = (-\infty, -\frac{4}{3}] \cup [2, +\infty)</math></p> | <p>٨</p>  |
| <p><math>f(x) = \sqrt{\log_{\log_{\delta}(\frac{x}{x-1})}}</math> <math>\log_{\log_{\delta}(\frac{x}{x-1})} \geq 0 \Rightarrow \log_{\delta}(\frac{x}{x-1}) \leq 1 \Rightarrow 1 &lt; \frac{x}{x-1} \leq \delta</math><br/> <math>\downarrow</math><br/> <math>2 &lt; \frac{x}{x-1} \leq 3 \rightarrow 1 &lt; x \leq \frac{3}{2}</math></p> <p><math>D_f = (1, \frac{3}{2}]</math></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <p>٩</p>  |
| <p>الف) <math>y = \log(2\cos x + 1)</math> <math>2\cos x + 1 &gt; 0 \rightarrow 2\cos x &gt; -1 \rightarrow \cos x &gt; -\frac{1}{2} \Rightarrow D_f = [2k\pi - \frac{2\pi}{3}, 2k\pi + \frac{2\pi}{3}]</math></p> <p>ب) <math>y = \sqrt{\log \frac{x-1}{x+1}}</math> <math>\log \frac{x-1}{x+1} \geq 0 \Rightarrow \frac{x-1}{x+1} \geq 1 \Rightarrow \begin{matrix} x \geq 1 \rightarrow x-1 \geq x+1 \rightarrow \emptyset \\ -1 \leq x \leq 1 \rightarrow \emptyset \\ -1 \geq x \rightarrow x-1 \leq x+1 \rightarrow x \leq -1 \end{matrix}</math></p> <p><math>\Rightarrow D_f = (-\infty, -1]</math></p> <p><math>\mathbb{R} \cap (-\infty, -1] = (-\infty, -1]</math></p>                                                                                                                                                                                                                                                                                                                                                               | <p>١٠</p> |