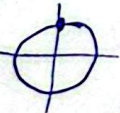


نام و نام خانوادگی: .....! بیست و نه شماره ۴ کلاس .....  
پاسخنامه تشریحی تکلیف شماره ۴ کلاس .....  
نام و نام خانوادگی: .....! بیست و نه شماره ۴ کلاس .....  
پاسخنامه تشریحی تکلیف شماره ۴ کلاس .....

|                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                |   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| <p>الف) <math>y = \sqrt{\frac{x^2 - 2x}{x^3 - x}}</math></p> <p><math>\rightarrow \frac{x(x-2)}{x(x-1)(x+1)} \geq 0 / x(x-1)(x+1) \neq 0</math></p> <p><math>\rightarrow \frac{-1}{-1} + \frac{2}{0} + \frac{1}{1} - \frac{1}{1} \rightarrow D_f = (-1, 0) \cup (0, 1) \cup [1, +\infty)</math></p>                                                                                              | <p>ب) <math>y = \sqrt{\frac{x^2 - x^3}{x^3 - x}}</math></p> <p><math>\rightarrow \frac{x^2(x-1)(x+1)}{x(x-1)(x+1)} \geq 0 / x(x-1)(x+1) \neq 0</math></p> <p><math>\rightarrow \frac{1}{+1} + \frac{1}{-1} + \frac{1}{+1} \rightarrow D_f = \mathbb{R} - \{-1, 0, 1\}</math></p>                                                                                                                               | ۱ |
| <p>الف) <math>y = \frac{x+1}{\sqrt{x+ x }}</math></p> <p><math>\rightarrow x+ x  &gt; 0 \rightarrow x &gt; 0</math></p> <p><math>\rightarrow D_f = (0, +\infty)</math></p>                                                                                                                                                                                                                       | <p>ب) <math>y = \frac{1}{\sqrt{x x }}</math></p> <p><math>\rightarrow x x  &gt; 0 \rightarrow x &gt; 0</math></p> <p><math>\rightarrow D_f = (0, +\infty)</math></p>                                                                                                                                                                                                                                           | ۲ |
| <p>الف) <math>y = \sqrt{2 - [x]}</math></p> <p><math>\rightarrow 2 - [x] \geq 0 \rightarrow [x] \leq 2 \rightarrow x &lt; 3</math></p> <p><math>\rightarrow D_f = (-\infty, 3)</math></p>                                                                                                                                                                                                        | <p>ب) <math>y = \frac{1}{\sqrt{2 - [x]}}</math></p> <p><math>\rightarrow 2 - [x] &gt; 0 \rightarrow [x] &lt; 2 \rightarrow x &lt; 3</math></p> <p><math>\rightarrow D_f = (-\infty, 3)</math></p>                                                                                                                                                                                                              | ۳ |
| <p>الف) <math>y = \sqrt{\left[x - \frac{1}{x}\right] + \left[x + \frac{1}{x}\right]}</math></p> <p><math>\rightarrow 2\left[x + \frac{1}{x}\right] - 1 \geq 0 \rightarrow \left[x + \frac{1}{x}\right] \geq \frac{1}{2}</math></p> <p><math>\rightarrow x + \frac{1}{x} \geq 1</math></p> <p><math>\rightarrow x \geq \frac{1}{x} \rightarrow D_f = \left[\frac{1}{x}, +\infty\right)</math></p> | <p>ب) <math>y = \sqrt{\left[x - \frac{1}{x}\right] + \left[-x + \frac{1}{x}\right]}</math></p> <p><math>\rightarrow \begin{cases} \text{if } x \in \mathbb{Z} &amp; [x] + [-x] = 0 \\ \text{if } x \notin \mathbb{Z} &amp; [x] + [-x] = -1 \end{cases}</math></p> <p><math>\rightarrow x - \frac{1}{x} \in \mathbb{Z} \rightarrow D_f = \left\{x \mid x = k + \frac{1}{x}, k \in \mathbb{Z}\right\}</math></p> | ۴ |
| <p>الف) <math>y = \frac{2}{\sin x - 1}</math></p> <p><math>\rightarrow \sin x \neq 1 \rightarrow</math> </p> <p><math>\rightarrow D_f = \mathbb{R} - \left\{2k\pi + \frac{\pi}{2}\right\}</math></p>                                                                                                          | <p>ب) <math>y = \frac{3}{2 \sin^2 x - 1}</math></p> <p><math>\rightarrow 2 \sin^2 x \neq 1 \rightarrow \sin x \neq \pm \frac{1}{\sqrt{2}} \rightarrow</math> </p> <p><math>\rightarrow D_f = \mathbb{R} - \left\{\frac{k\pi}{2} + \frac{\pi}{4}\right\}</math></p>                                                        | ۵ |

|                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                          |           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| <p>الف) <math>y = \sqrt{r \sin x - 1}</math></p> <p><math>\rightarrow r \sin x - 1 \geq 0 \rightarrow \sin x \geq \frac{1}{r}</math> </p> <p><math>\hookrightarrow D_f = \left[ 2k\pi + \frac{\pi}{4}, 2k\pi + \frac{5\pi}{4} \right]</math></p> | <p>ب) <math>y = \sqrt{\cos x - 1}</math></p> <p><math>\rightarrow \cos x - 1 \geq 0 \rightarrow \cos x \geq 1</math> </p> <p><math>\hookrightarrow D_f = \{2k\pi\}</math></p>                                                                                                                                                         | <p>٦</p>  |
| <p>الف) <math>\cos y =  x  - 3</math></p> <p><math>\rightarrow -1 \leq  x  - 3 \leq 1 \rightarrow 2 \leq  x  \leq 4</math></p> <p><math>\rightarrow \begin{cases} -4 \leq x \leq -2 \\ 2 \leq x \leq 4 \end{cases}</math></p> <p><math>\hookrightarrow D_f = [-4, -2] \cup [2, 4]</math></p>                                      | <p>ب) <math>y = \arcsin(x^2 + 3x + 1)</math></p> <p><math>\rightarrow -1 \leq x^2 + 3x + 1 \leq 1</math></p> <p><math>\rightarrow \begin{cases} (x+1)(x+2) \geq 0 \\ x(x+3) \leq 0 \end{cases}</math></p> <p><math>\rightarrow \begin{matrix} -2 &amp; -1 \\ + &amp; - &amp; - &amp; + \\ - &amp; + &amp; + &amp; - \\ -2 &amp; 0 \end{matrix}</math></p> <p><math>\hookrightarrow D_f = [-2, -1] \cup [0, 1]</math></p> | <p>٧</p>  |
| <p>الف) <math>y = \sqrt{r - \log_r(x-2)}</math></p> <p><math>\rightarrow x-2 &gt; 0 \rightarrow x &gt; 2</math></p> <p><math>\rightarrow r - \log_r(x-2) \geq 0</math></p> <p><math>\rightarrow \log_r(x-2) \leq r \rightarrow x \leq 11</math></p> <p><math>\hookrightarrow D_f = (2, 11]</math></p>                             | <p>ب) <math>y = \log(x^2 - x)</math></p> <p><math>\rightarrow x(x-1) &gt; 0</math></p> <p><math>\rightarrow \begin{matrix} x &amp; x-1 \\ + &amp; - &amp; - &amp; + \\ - &amp; 0 &amp; 1 &amp; 0 \end{matrix}</math></p> <p><math>\rightarrow \frac{-1}{-1} &lt; x &lt; \frac{1}{1}</math></p> <p><math>\hookrightarrow D_f = (-1, 0) \cup (1, +\infty)</math></p>                                                       | <p>٨</p>  |
| <p>الف) <math>y = \frac{r}{x^2 + 1} \rightarrow x^2 \neq -1 \rightarrow x \neq \log_r(-1)</math></p> <p><math>\hookrightarrow D_f = \mathbb{R}</math></p>                                                                                                                                                                         | <p>ب) <math>y = \frac{r}{x^2 - 1} \rightarrow x^2 \neq 1 \rightarrow x \neq \pm 1</math></p> <p><math>\hookrightarrow D_f = \mathbb{R} - \{0\}</math></p>                                                                                                                                                                                                                                                                | <p>٩</p>  |
| <p>ج) <math>y = \frac{r}{x^2 - 2} \rightarrow x^2 \neq 2 \rightarrow x \neq \pm \log_r 2</math></p> <p><math>\hookrightarrow D_f = \mathbb{R} - \{\log_r 2\}</math></p>                                                                                                                                                           | <p>د) <math>y = \frac{r}{x^2 - r} \rightarrow x^2 \neq r \rightarrow \log_r r \neq x</math></p> <p><math>\hookrightarrow D_f = \mathbb{R} - \{\log_r r\}</math></p>                                                                                                                                                                                                                                                      | <p></p>   |
| <p>الف) <math>y = (x+1)!</math></p> <p><math>\rightarrow x+1 \in \mathbb{N} \rightarrow x = \frac{n-1}{r}</math></p> <p><math>\hookrightarrow D_f = \left\{ x \mid x = \frac{k-1}{r}, k \in \mathbb{N} \right\}</math></p>                                                                                                        | <p>ب) <math>y = \left( \frac{rx-1}{rx-2} \right)!</math></p> <p><math>\rightarrow \frac{rx-1}{rx-2} \in \mathbb{N}</math></p> <p><math>\hookrightarrow D_f = \left\{ x \mid x = \frac{-ak+r}{rk-r}, k \in \mathbb{N} \right\}</math></p> <p><math>\frac{ax+b}{cx+d} = y \rightarrow x = \frac{dy-b}{cy-a}</math></p>                                                                                                     | <p>١٠</p> |