

نام و نام خانوادگی: ..... پایه: ..... پاسخنامه تشریحی تکلیف شماره ۴ ..... کلاس: ..... آیس: .....

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| <p>الف) <math>y = \sqrt{4 - \sqrt{2-x}}</math> <math>2-x \geq 0 \rightarrow 2 \geq x</math><br/> <math>4 - \sqrt{2-x} \geq 0 \rightarrow 4 \geq \sqrt{2-x} \rightarrow 16 \geq 2-x \rightarrow x \geq -14</math><br/> <math>D_f = [-14, 2]</math></p> <p>ب) <math>y = \sqrt{3 - \sqrt{x-2}}</math> <math>x-2 \geq 0 \rightarrow x \geq 2</math><br/> <math>3 - \sqrt{x-2} \geq 0 \rightarrow 3 \geq \sqrt{x-2} \rightarrow 9 \geq x-2 \rightarrow 11 \geq x</math><br/> <math>D_f = [2, 11]</math></p>                           | ۱ |
| <p>الف) <math>y = \sqrt{4-2x^2} \rightarrow 4-2x^2 \geq 0 \rightarrow 4 \geq 2x^2 \rightarrow 2 \geq x^2 \rightarrow -\sqrt{2} \leq x \leq \sqrt{2}</math><br/> <math>D_f = [-\sqrt{2}, \sqrt{2}]</math></p> <p>ب) <math>\sqrt{3 x -9} \rightarrow 3 x -9 \geq 0 \rightarrow 3 x  \geq 9 \rightarrow  x  \geq 3</math><br/> <math>D_f = (-\infty, -3] \cup [3, +\infty)</math></p>                                                                                                                                               | ۲ |
| <p>الف) <math>y = \sqrt[3]{\frac{ x +1}{ x -3}}</math> <math> x -3 \neq 0 \rightarrow  x  \neq 3 \rightarrow x \neq \pm 3 \Rightarrow D_f = \mathbb{R} - \{\pm 3\}</math><br/>         مخرج نباید صفر شود.</p> <p>ب) <math>y = \sqrt{\frac{\sqrt{x}+1}{\sqrt{x}-3}}</math> <math>\begin{cases} x \geq 0 \\ \sqrt{x} \neq 3 \rightarrow x \neq 9 \end{cases} \Rightarrow D_f = [0, +\infty) - \{9\}</math></p>                                                                                                                    | ۳ |
| <p>الف) <math>y = \frac{\sqrt{3- x }}{ x +2} \rightarrow \begin{cases} 3- x  \geq 0 \rightarrow  x  \leq 3 \rightarrow -3 \leq x \leq 3 \\  x +2 \neq 0 \rightarrow  x  \neq -2 \end{cases} \Rightarrow D_f = [-3, 3]</math></p> <p>ب) <math>y = \frac{\sqrt{4-x^2}}{ x -1} \rightarrow \begin{cases} 4-x^2 \geq 0 \rightarrow 4 \geq x^2 \rightarrow 2 \geq  x  \Rightarrow -2 \leq x \leq 2 \\  x -1 \neq 0 \rightarrow  x  \neq 1 \rightarrow x \neq \pm 1 \end{cases}</math><br/> <math>D_f = [-2, 2] - \{\pm 1\}</math></p> | ۴ |
| <p>الف) <math>y = \frac{x+1}{\sqrt{x+ x }} \Rightarrow x+ x  &gt; 0 \quad \begin{matrix} -x \\ 0 \\ +x \\ + \end{matrix} \Rightarrow D_f = \mathbb{R}^+</math></p> <p>ب) <math>y = \frac{1}{\sqrt{x x }} \Rightarrow x x  &gt; 0 \quad \begin{matrix} -x \\ 0 \\ +x \\ + \end{matrix} \Rightarrow D_f = \mathbb{R}^+</math></p>                                                                                                                                                                                                  | ۵ |

الف)  $y = \sqrt{2-x} \rightarrow 2-x \geq 0 \rightarrow x \leq 2 \rightarrow x < 3 \Rightarrow D_f = (-\infty, 2)$

ب)  $y = \frac{1}{\sqrt{2-x}} \rightarrow 2-x > 0 \rightarrow x < 2 \Rightarrow D_f = (-\infty, 2)$

2

الف)  $y = \frac{1}{x[x]}$   $\rightarrow \underbrace{x[x]}_{\text{مضاعف للمقام لا يساوي 0}} \neq 0 \quad D_f = (-\infty, 0) \cup [1, +\infty)$

2

ب)  $y = \frac{1}{\sqrt{-x[x]}} \rightarrow -x[x] > 0 \rightarrow x[x] < 0 \rightarrow D_f = \emptyset$

2

الف)  $y = \sqrt{[x - \frac{1}{p}] + [x + \frac{p}{p}]} \rightarrow [x - \frac{1}{p}] + [x + \frac{p}{p}] \geq 0 \rightarrow [x + \frac{p}{p} - 1] + [x + \frac{p}{p}] \geq 0$   
 $[x + \frac{p}{p}] - 1 + [x + \frac{p}{p}] \geq 0 \rightarrow 2[x + \frac{p}{p}] \geq 1 \rightarrow [x + \frac{p}{p}] \geq \frac{1}{2} \rightarrow x + \frac{p}{p} \geq 1$   
 $\rightarrow x \geq \frac{1}{p} \Rightarrow D_f = [\frac{1}{p}, +\infty)$

2

ب)  $y = \sqrt{[x - \frac{1}{p}] + [-x + \frac{1}{p}]} \rightarrow \sqrt{[x - \frac{1}{p}] + [-(x + \frac{1}{p})]}$

if  $\begin{cases} \alpha \in \mathbb{Z} & [\alpha] + [-\alpha] = 0 \\ \alpha \notin \mathbb{Z} & [\alpha] + [-\alpha] = -1 \end{cases} \Rightarrow x - \frac{1}{p} \in \mathbb{Z} \Rightarrow D_f = \{x | x = k + \frac{1}{p}, k \in \mathbb{Z}\}$

2

الف)  $y = \frac{1}{\sqrt{2\sin^2 x - 1}} \Rightarrow 2\sin^2 x - 1 \neq 0 \rightarrow 2\sin^2 x \neq 1 \rightarrow \sin^2 x \neq \frac{1}{2}$   
 $\Rightarrow \sin x \neq \pm \frac{\sqrt{2}}{2} \Rightarrow x \neq \frac{k\pi}{2} + \frac{\pi}{4} \Rightarrow D_f = \mathbb{R} - \left\{ \frac{k\pi}{2} + \frac{\pi}{4} \right\}$  ✓

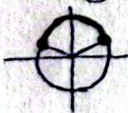
2

ب)  $y = \frac{\cot x + 1}{\tan x + 1} \rightarrow \begin{cases} \tan x + 1 \neq 0 \rightarrow \tan x \neq -1 \Rightarrow x \neq k\pi - \frac{\pi}{4} \\ \sin x \neq 0 \rightarrow x \neq k\pi \end{cases}$

$D_f = \mathbb{R} - \left\{ \frac{k\pi}{2}, k\pi - \frac{\pi}{4} \right\}$  ✗

1, 2

الف)  $y = \sqrt{2\sin x - 1} \rightarrow 2\sin x - 1 \geq 0 \rightarrow 2\sin x \geq 1 \rightarrow \sin x \geq \frac{1}{2}$

  $D_f = [2k\pi + \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6}]$  ✓

ب)  $y = \sqrt{1 - 2\cos x} \rightarrow 1 - 2\cos x \geq 0 \rightarrow 2\cos x \leq 1 \rightarrow \cos x \leq \frac{1}{2}$

  $D_f = [2k\pi + \frac{\pi}{3}, 2k\pi + \frac{5\pi}{3}]$

1, 2