

۱۷, ۱۷, ۱۷

نام و نام خانوادگی: پاسخنامه تشریحی تکلیف شماره ۴ کلاس: هم بهر A

الف $y = \sqrt{4-2x} \rightarrow 4-2x \geq 0 \rightarrow 2 \geq x$ $4-\sqrt{4-2x} \geq 0 \rightarrow 4 \geq 4-2x \rightarrow 12 \geq 2-2x \rightarrow x \geq -14$

$\rightarrow Df = [14, 2] = \{14, +\infty\} \cap (-\infty, 2]$

ب $y = \sqrt{3-\sqrt{x-2}} \rightarrow x-2 \geq 0 \rightarrow x \geq 2$ $3-\sqrt{x-2} \geq 0 \rightarrow 3 \geq \sqrt{x-2} \rightarrow 9 \geq x-2 \rightarrow 11 \geq x$

$\rightarrow Df = (-\infty, 11] \cap \{2, +\infty\} = [2, 11]$

الف $y = \sqrt{4-2x^2} \rightarrow 4-2x^2 \geq 0 \rightarrow 4 \geq 2x^2 \rightarrow 2 \geq x^2 \rightarrow \sqrt{2} \geq x \rightarrow Df = (-\infty, \sqrt{2}]$

$\sqrt{2} \geq x \geq -\sqrt{2}$ ۵۱۷

ب $y = \sqrt{3|x|-9} \rightarrow 3|x|-9 \geq 0 \rightarrow 3|x| \geq 9 \rightarrow |x| \geq 3 \rightarrow x \geq 3, x \leq -3$

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$\rightarrow Df = \{3, +\infty\} \cup (-\infty, -3]$

الف $y = \sqrt[3]{\frac{|x|+1}{|x|-3}} \rightarrow |x|-3 \neq 0 \rightarrow |x| \neq 3 \rightarrow x \neq 3, -3 \rightarrow Df = \mathbb{R} - \{3, -3\}$

ب $y = \sqrt[3]{\frac{5x+1}{5x-3}} \rightarrow x \geq 0$ $\sqrt{x}-3 \neq 0 \rightarrow \sqrt{x} \neq 3 \rightarrow x \neq 9$

$\rightarrow Df = (0, +\infty) - \{9\}$

الف $y = \frac{\sqrt{3-|x|}}{|x|+2} \rightarrow |x|+2 \neq 0 \checkmark$ $3-|x| \geq 0 \rightarrow 3 \geq |x| \rightarrow 3 \geq x, -3 \leq x$

$\rightarrow Df = \{-3, 3\} \checkmark$

ب $y = \frac{\sqrt{4-x^2}}{|x|-1} \rightarrow |x|-1 \neq 0 \rightarrow |x| \neq 1 \rightarrow x \neq 1, -1$ $4-x^2 \geq 0 \rightarrow 4 \geq x^2 \rightarrow 2 \geq x, -2 \leq x$

$\rightarrow Df = \{1, -1\}$

الف $y = \frac{x+1}{\sqrt{x+|x|}}$ $x+|x| \geq 0$ (باعدگداری) $\checkmark$ اعداد + $\times$ اعداد منفی $\times$ عدده $\times$

$\rightarrow Df = \mathbb{R}^+$

ب $y = \frac{1}{\sqrt{x|x|}}$ $x|x| \geq 0$ (باعدگداری) $\checkmark$ اعداد + $\times$ اعداد منفی $\times$ عدده $\times$

$\rightarrow Df = \mathbb{R}^+$

الف) $y = \sqrt{2-x} \rightarrow 2-x \geq 0 \rightarrow x \leq 2 \rightarrow Df = (-\infty, 2]$

ب) $y = \frac{1}{\sqrt{2-x}} \rightarrow 2-x \geq 0 \rightarrow x \leq 2 \rightarrow Df = (-\infty, 2]$

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الف) $y = \frac{1}{x \sqrt{x}} \rightarrow x \sqrt{x} \neq 0 \rightarrow x \neq 0 \rightarrow Df = \mathbb{R} - \{0\}$

0, 2, 3

1, 2, 3

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

الف) $\sqrt{x-\frac{1}{3}} + [x+\frac{2}{3}] \geq 0 \rightarrow [x+\frac{2}{3}] \geq -[x-\frac{1}{3}] \rightarrow [x+\frac{2}{3}] \geq -x + \frac{1}{3} \rightarrow 2[x+\frac{2}{3}] \geq 1 \rightarrow [x+\frac{2}{3}] \geq \frac{1}{2} \rightarrow x+\frac{2}{3} \geq \frac{1}{2} \rightarrow x \geq -\frac{1}{6} \rightarrow Df = [-\frac{1}{6}, +\infty)$

ب) $\sqrt{\frac{x-\frac{1}{3}}{y}} + \sqrt{\frac{-x+\frac{1}{3}}{-y}} \geq 0$

$y \in \mathbb{Z} \rightarrow$ جواب = 0 ✓

$y \in \mathbb{Z} \rightarrow$ جواب = -1 ✗

$x - \frac{1}{3} \in \mathbb{Z} \rightarrow x \in \mathbb{Z} + \frac{1}{3} \rightarrow Df = \{x | x \in \mathbb{Z} + \frac{1}{3}\}$

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

$\rightarrow Df = \mathbb{R} - \{x | x = \frac{\pi}{4} + k\pi, x = \frac{3\pi}{4} + k\pi\}$

0, 1, 2

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ب) $y = \frac{\cot x + 1}{\tan x + 1}$

$\cot$: نقاب 0 و 180 تعريف نشد
 $\tan$: نقاب 90 و 270 تعريف نشد

$\tan x + 1 \neq 0 \rightarrow \tan x \neq -1 \rightarrow \tan x \neq 135^\circ, 315^\circ$

$\rightarrow Df = \mathbb{R} - \{x | x = \frac{\pi}{4} + k\pi, x = \frac{5\pi}{4} + k\pi\}$

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

$\rightarrow Df = \{x | x = \frac{\pi}{6} + 2k\pi, x = \frac{5\pi}{6} + 2k\pi\}$

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

$\rightarrow Df = [x | x = \frac{\pi}{3} + 2k\pi, x = \frac{5\pi}{3} + 2k\pi]$