

نام و نام خانوادگی: پاسخنامه تشریحی تکلیف شماره ۷۰۰۰ کلاس یازدهم B.

۲۰. آزمون عدای نورستر

$$f(u) = \sqrt{u+2} \sqrt{u-2} \quad g(u) = \sqrt{u-2} \sqrt{u-2} \Rightarrow u \geq 1 \quad f(u) + g(u) = a + b \sqrt{u+c}$$

$$(f(u) + g(u))^2 = u + 2\sqrt{u-2} + u - 2\sqrt{u-2} + 2\sqrt{(u-2)(u-2)} \Rightarrow 2u + 2\sqrt{u-2} - 14 \Rightarrow 2u - 14$$

$$f(u) + g(u) = \sqrt{2u-14} = \sqrt{2(u-7)} = 2\sqrt{u-7}$$

$$2\sqrt{u-7} = a + b\sqrt{u+c} \Rightarrow \frac{a+b}{c} = \frac{0+2}{-2} = -1$$

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$$f(u) = \frac{u+2}{u^2-2u+2} \quad g(u) = \{(2,1)(1,0)(3,5)(0,2)\}$$

$$u=2 \rightarrow f(2) = \frac{4}{0} = \infty \quad u=3 \rightarrow f(3) = \frac{5}{-1} = -5 \quad u=1 \rightarrow f(1) = \frac{3}{0} = \infty \quad u=0 \rightarrow f(0) = \frac{2}{2} = 1$$

۲

$$\frac{g}{f} = \{(2, \frac{1}{-5})(0, \frac{2}{1})\} \Rightarrow \{(2, -\frac{1}{5})(0, 2)\}$$

$$الف) f(2u) \rightarrow \{(\frac{1}{4}, 2)(\frac{3}{4}, -1)(\frac{5}{4}, 5)(\frac{0}{4}, 2)\}$$

$$ب) f(u^2) \rightarrow \{(1, 2)(-1, 2)(\sqrt{3}, -1)(-\sqrt{3}, 5)(2, 2)(-2, 2)\}$$

$$ج) 2g^2(u)+1 \rightarrow \{(-2, 11)(1, 3)(3, 9)(-1, 1)\}$$

$$د) \frac{2f}{g} \rightarrow \{(\frac{2}{-1}, \frac{1}{0})(1, \frac{2}{-1})(3, \frac{2}{-1})\} \Rightarrow \{(1, -2)(3, -1)\}$$

دامنه مشترک = $\{-1, 1, 3\}$

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$$دامنه مشترک \Rightarrow \{-2, 2, 3\}$$

$$h = 2f + g \Rightarrow \{(-2, 9)(2, 5)(3, 5)\}$$

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$$f(u) = \frac{\sqrt{3u-u}}{u-2} \quad g(u) = [u] + [-u]$$

$$\left(\frac{f}{g+1}\right)(u) \Rightarrow \left(u, \frac{\sqrt{3u-u}}{\frac{u-2}{[u]+[-u]+1}}\right) \rightarrow \left(u, \frac{\sqrt{3u-u}}{(u-2)([u]+[-u]+1)}\right)$$

$$3u \geq 0 \rightarrow u \geq 0$$

$$\sqrt{3u-u} \geq 0 \rightarrow \frac{0}{-1+1} [0, 3]$$

$$u-2 \neq 0 \rightarrow u \neq 2$$

$$[u] + [-u] + 1 \neq 0 \rightarrow \{u | u \in \mathbb{Z}\}$$

$$D = \{0, 1, 3\}$$

۵

$$u \in \mathbb{Z} \Rightarrow 0 \checkmark$$

$$u \notin \mathbb{Z} \Rightarrow -1 \times$$

$f(u) = \sqrt{5u - u^2 - 2} \rightarrow \sqrt{-(u-1)(u-2)}$ $g(u) = \{(1,3)(2,2)(3,4)(5,1)\}$ $h(u) = \frac{f(u)}{g(u)} = \left\{ (1,0) (2, \frac{\sqrt{3}}{2}) (3,0) \right\}$ $u=1 \rightarrow f(u)=0$ $u=2 \rightarrow f(u) = \frac{\sqrt{3}}{2}$ $u=3 \rightarrow f(u)=0$ $u=5 \rightarrow f(u), \sqrt{-2} \text{ غير موجود}$	٦
الف) $y = u^3 - 3u^2 + 3u \rightarrow y-1 = (u-1)^3 \Rightarrow u-1 = \sqrt[3]{y-1} \Rightarrow u = \sqrt[3]{y-1} + 1$ ب) $y = \frac{1}{u^2 - 2u} \rightarrow u^2 - 2u = \frac{1}{y} \rightarrow (u-1)^2 = \frac{1}{y} + 1 \Rightarrow u-1 = \sqrt{\frac{1+y}{y}} \Rightarrow u = \sqrt{\frac{1+y}{y}} + 1$ $\frac{1+y}{y} \geq 0 \Rightarrow \frac{-1}{+} - \frac{0}{-} + \Rightarrow R = (-\infty, -1] \cup (0, +\infty)$	٧
الف) $y = u^3 - 2u + 10 \quad \min \frac{y}{4} \quad R = [4, +\infty)$ ب) $y = -u^2 + 4u + 3 \quad \max \frac{y}{12} \quad R = (-\infty, 12]$ ج) $y = \sqrt{u^2 - 2u - 3} \quad \min \frac{y}{-4} \quad R = \sqrt{[-4, +\infty)} \Rightarrow R = [0, +\infty)$ د) $y = \sqrt{4u - u^2} \quad \max \frac{y}{9} \quad R = \sqrt{(-\infty, 9]} \Rightarrow R = [0, 3]$	٨
الف) $y = u^3 - 5u^2 + 2u + 1 \Rightarrow R = \mathbb{R}$ ب) $y = u^5 - 4u^2 + 3u + 2 \Rightarrow R = \mathbb{R}$ ج) $y = \sqrt{u^5 - 4u^2 + 5u + 1} \Rightarrow R = \sqrt{(-\infty, +\infty)} \Rightarrow R = [0, +\infty)$ د) $y = (u^5 - 2u^2 + 3u + 1)^2 \Rightarrow R = ((-\infty, +\infty))^2 \Rightarrow R = [0, +\infty)$	٩
الف) $y = \frac{3u+1}{u-2} \Rightarrow R = \mathbb{R} - \{3\}$ ب) $y = \frac{2u+1}{u+1} \Rightarrow R = \mathbb{R} - \{2\}$	١٠