

نام و نام خانوادگی پاسخنامه تشریحی تکلیف شماره کلاس یادگیرنده A

$$y = \sqrt{x^r f(n+1)} = \sqrt{x^r \left(\left(\frac{1}{x} \right)^{n+1} - 1 \right)}$$

$$\frac{0}{-} \quad \frac{1}{+} \quad \frac{0}{-}$$

$$x^{-n} \times x^{-1} = 0 \rightarrow x^{-n+1} = 1$$

$$\rightarrow -n+1 = 0 \rightarrow n = 1$$

$$D_f = [0, 1]$$

$$f(-x) = \sqrt{-x + |x - x|}$$

$$f(x) = \begin{cases} \sqrt{-x - x + x} & ; x \geq x \rightarrow 0 \leq x \\ \sqrt{-x + x - x} & ; x < x \end{cases}$$

$$\frac{0}{+} \quad \frac{1}{-} \quad \frac{0}{+}$$

$$D_f = (-\infty, 1] = \mathbb{R} \cap \mathbb{R}^+$$

$$y = \sqrt{\frac{x-1}{f(x)}} \rightarrow 1$$

$$\frac{-\varepsilon}{-} \quad \frac{1}{+} \quad \frac{r}{-} \quad \frac{r}{+}$$

$$D_f = (-\varepsilon, 1] \cup (r, r)$$

$$y = \sqrt{f(x) - f\left(\frac{x}{n}\right)} = \sqrt{x^r + x - \left(\frac{x}{n}\right)^r - \frac{x}{n}} = \sqrt{\left(x - \frac{x}{n}\right) \left(x^r + 1 + \frac{14}{n^r}\right) + x - \frac{x}{n}}$$

$$= \sqrt{\left(x - \frac{x}{n}\right) \left(x^r + \frac{14}{n^r} + 9\right)}$$

$$\frac{-r}{-} \quad \frac{0}{+} \quad \frac{r}{-} \quad \frac{r}{+}$$

$$D_f = [-r, 0) \cup [r, +\infty)$$

$$(x^r + p n + q)(x^r + r n + s) = 9x^r + (3r + 9p)x^r + (pr + 9q + 9s)x^r + (ps + 9r)x + 9s$$

$$= 9x^r - 7x^r - 9x - 9$$

$$\begin{cases} 3r + 9p = 0 \\ 9s = -9 \\ ps + 9r = -9 \\ pr + 9q + 9s = -9 \end{cases}$$

$$r = -p = 1, q = -r, s = 1 \rightarrow (x^r - n - 1)(x^r + n + 1) \rightarrow a = -1, b = -9$$

$$\sqrt{-(a+b)} = 2$$

$$f(r) + f(10) = f(r+1) + f(r+1) = r-1 + 1-1 = 1$$

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$$f(n) = n^2 - 9n^2 + 12n + 1 - 1 = (n-2)^2 + 1 =$$

$$g(n) = n^2 + 9n^2 + 12n + 1 - 1 = (n+2)^2 - 1$$

$$\frac{g(\sqrt{r}-2)}{f(\sqrt{r}+2)} = \frac{r-2r}{r+1} = \frac{-r}{1} = -r$$

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$$(f(n))^2 + (g(n))^2 + 2f(n)g(n) = (n+2\sqrt{n-1})^2 + (n-2\sqrt{n-1})^2 + 2\sqrt{(n-1)(n-1)} = 4n + 4\sqrt{n-1} = 4(n+1) \rightarrow f(n)+g(n) = \sqrt{4n+4} = 2\sqrt{n+1} \rightarrow \frac{a+b}{c} = \frac{0+r}{-1} = -\frac{1}{r}$$

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$$f(n) = \frac{n+2}{(n-1)(n-1)} = f(n) = \{(2, -1), (0, \frac{1}{2}), \dots\}$$

$$\frac{g}{f} = \{(2, -\frac{1}{2}), (0, 4)\}$$

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$$الف) f(n) = \{(\frac{1}{2}, 2), (\frac{2}{3}, -1), (2, 2), (\frac{1}{2}, 4)\}$$

$$ب) f(n) = \{(1, 2), (\sqrt{2}, -1), (2, 2)\}$$

$$ج) 2g(n)+1 = \{(-2, 1), (1, 2), (2, 4), (-1, 1)\}$$

$$د) \frac{2f}{g} = \{(1, -1), (\frac{1}{2}, -1)\}$$

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$$\begin{cases} a^2 = 1 \rightarrow a = \pm 1 \\ a^2 = 2 \rightarrow a = \pm \sqrt{2} \\ a^2 = 3 \rightarrow a = \pm \sqrt{3} \\ a^2 = -1 \rightarrow \text{no solution} \end{cases}$$

$$\rightarrow \{(\pm 1, 2), (\pm \sqrt{2}, -1), (\pm \sqrt{3}, 2)\}$$