

نام و نام خانوادگی: الفبا: شماره: کلاس: از درس: پاسنامه تشریحی تکلیف شماره ۵

$f(n) = 2\left(\frac{1}{2}\right)^{n-2} - 1$
 $f(n+1) = \left(\frac{1}{2}\right)^{n-1} - 1$
 $y = \sqrt{n^2 f(n+1)} \rightarrow y = \sqrt{n^2 \left(\left(\frac{1}{2}\right)^{n-1} - 1\right)}$
 $y = \sqrt{n^2 \left(\frac{1}{2}\right)^{n-1} - n^2} \rightarrow n^2 \left(\frac{1}{2}\right)^{n-1} - n^2 \geq 0 \rightarrow n^2 \left(\frac{1}{2}\right)^{n-1} \geq n^2$
 $\frac{1}{2} \geq 1 \rightarrow n \leq 1$
 $\frac{1}{2} \leq 1 \rightarrow n \geq 1$
 $D_f = (0, 1]$

$f(n) = \sqrt{n+|n+2|}$
 $f(-n) = \sqrt{-n+|-n+2|} = \sqrt{-n+|2-n|}$
 $\frac{-n+2}{2} \geq 0 \rightarrow -n+2 \geq 0 \rightarrow n \leq 2$
 $D_f = (-\infty, 2]$

$f(n) = \sqrt{\frac{n-1}{f(n)}}$
 $D_f = [-5, 3]$
 $D_f = (3, 2) \cup (-\infty, 1]$
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$f(n) = n^2 + n$
 $y = \sqrt{f(n) - f\left(\frac{2}{n}\right)}$
 $y = \sqrt{\frac{1}{n^2} (n^2 - \varepsilon) \left(\frac{1}{n^2} (n^2 + 14 + \varepsilon n^2) + 1\right)}$
 $D_f = [-1, 20] \cup [2, +\infty)$

$$f(n^2+n) \geq n^2-1$$

$$f(r) + f(1) ?$$

$$n^2+n \geq 1 \rightarrow x=1 \rightarrow f(r) = r-1 = 1$$

$$n^2+n \geq 1 \rightarrow n \geq 1 \rightarrow f(1) = 1-1 = 0$$

$$\rightarrow f(r) + f(1) = 1+0 = 1$$

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$$f(n) = n^2 - 4n^2 + 12n$$

$$g(n) = n^2 + 4n^2 + 12n$$

$$\frac{g(\sqrt{v}-r)}{f(\sqrt{r}+r)} ?$$

$$f(n) = n^2 - 4n^2 + 12n - 1 + 1$$

$$g(n) = n^2 + 4n^2 + 12n + 1 - 1$$

$$g(n) = (n+2)^2 - 4$$

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

$$\frac{g(\sqrt{v}+r)}{f(\sqrt{r}+r)} = \frac{(\sqrt{v}+r)^2 - 4}{(\sqrt{r}+r)^2 + 1} = \frac{v-2v}{r+1} = -1$$

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$$f(n) = \sqrt{n+2\sqrt{n-2}}$$

$$g(n) = \sqrt{n-2\sqrt{n-2}}$$

$n \geq 2$

$$f(n) + g(n) = a + b\sqrt{n+c} = \sqrt{n-2} + 1 + \sqrt{n-2} - 1 = 2\sqrt{n-2}$$

$$2\sqrt{n-2} \rightarrow \begin{matrix} a=0 \\ b=2 \\ c=-2 \end{matrix}$$

$$f(n) = \sqrt{n-2+2\sqrt{n-2}+2} = \sqrt{(n-2+2)^2} = \sqrt{n-2+2}$$

$$g(n) = \sqrt{n-2-2\sqrt{n-2}+2} = \sqrt{(n-2-2)^2} = \sqrt{n-2-2}$$

$$\frac{a+b}{c} = \frac{0+2}{-2} = -1$$

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$$f(n) = \frac{n+1}{n^2-2n+1}$$

$$g(n) = \{ (1,1), (1,0), (0,1), (0,2) \}$$

$$\frac{g}{f}$$

$$(n-1)(n-1) \rightarrow Df = 1B - 2, 1, 1$$

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

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$$a) f(rn) \rightarrow n \geq 1 \rightarrow n \geq \frac{1}{r}, rn \geq 2 \rightarrow n \geq \frac{2}{r} \rightarrow f(n) = \{ (\frac{1}{r}, 2), (\frac{2}{r}, 1), (2, 1), (-\frac{1}{r}, 4) \}$$

$$b) f(n^2) \rightarrow n^2 = 1 \rightarrow n \geq 1, n^2 \geq 2 \rightarrow n \geq \sqrt{2} \rightarrow f(n^2) = \{ (1, 2), (-1, 4), (\sqrt{2}, -1), (-\sqrt{2}, -1), (2, 2), (-2, 2) \}$$

$$c) g(rn) + 1 = \{ (-1, 1 \times 1 + 1), (1, 1 \times 1 + 1), (1, 1 \times 1 + 1), (-1, 1 \times 1 + 1) \}$$

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

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