

نام و نام خانوادگی: ... پاسخنامه تشریحی تکلیف شماره ... کلاس ...

$$f(x) = \sqrt{x+4}\sqrt{x-4} + \sqrt{x-4}\sqrt{x-4} = A \Rightarrow A^2 = x+4\sqrt{x-4} + x-4\sqrt{x-4} + 2\sqrt{x^2-16}$$

$$2x + 2\sqrt{x^2-16} = A^2 \Rightarrow 2x + 2|x-4| = A^2 \xrightarrow{x \geq 4} 2x + 2x - 16 = A^2$$

$$A^2 \leq x - 16 \Rightarrow A = 2\sqrt{x-4}$$

$$\frac{0+2}{-4} = \frac{-1}{2}$$

$$a=0, b=2, c=-4$$

$$g(x) = \left\{ \left(\frac{1}{2}, 1 \right) \left(0, \frac{1}{2} \right) \right\}$$

$$f(x) = \left\{ \left(\frac{1}{2}, \frac{1}{2} \right) \left(0, \frac{1}{2} \right) \right\}$$

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

$$f(2x) = \left\{ \left(\frac{1}{2}, 2 \right) \left(\frac{1}{2}, -1 \right) \left(2, 2 \right) \left(-\frac{1}{2}, 4 \right) \right\}$$

$$f(x^2) = \left\{ (1, 2) (\sqrt{2}, -1) (2, 2) (-2, 2) \right\}$$

$$2g^2(x) = \left\{ (-2, 1) (1, 2) (2, 1) (-1, 1) \right\}$$

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

$$g = \left\{ (0, 1) (2, 2) (-2, 4) (-1, 2) (2, 2) \right\}$$

$$f(x) = \left\{ (1, 1) (2, 1) (2, 1) (-2, 2) \right\}$$

$$2f(x) = \left\{ (2, 2) (2, 2) (2, 1) (-2, 2) \right\}$$

$$2f+g = \left\{ (2, 2) (-2, 4) (2, 2) \right\}$$

$$\frac{\sqrt{x^2-4} (x^2-4)}{x-2 (x^2-4)+1} = \frac{1}{x+1}$$

$$Df = \{k | k \in \mathbb{Z}, k \neq 2\}$$

$h(n) = \left\{ (1, 0), \left(1, \sqrt{\frac{r}{p}}\right), (r, 0) \right\}$	6
$y = n^2 - 4n^2 + 4n \rightarrow R_f = \mathbb{R}^0$ $R_f = (-\infty, 1) \cup (0, \infty) \left \frac{1-y}{1-y} \right \leq \frac{1}{y} + 1 > 0 \quad \leftarrow u = 1 \pm \sqrt{\frac{1}{y} + 1}$ $y = \frac{1}{n^2 - 4n} \Rightarrow y = \frac{1}{(n-1)^2 - 1} \Rightarrow (n-1)^2 - 1 = \frac{1}{y} \Rightarrow (n-1)^2 = \frac{1}{y} + 1$	7
$\begin{aligned} 1) y, n^2 - 4n + 1 & \quad \text{ext } \left \frac{1-y}{1-y} \right \quad R_f = [4, +\infty) \\ 2) y = -n^2 + 4n + 5 & \quad \text{ext } \left \frac{-y}{1-y} \right \quad R_f = (-\infty, 12] \\ 3) y = \sqrt{n^2 - 4n - 1} & \quad \text{ext } \left \frac{y}{1-y} \right \quad R_f = [0, +\infty) \\ 4) \sqrt{4n - n^2} & \quad \text{ext } \left \frac{-y}{1-y} \right \quad R_f = [1, 0] \end{aligned}$	8
$\begin{aligned} 1) y, n^2 - 4n^2 + 4n + 1 & \quad R_f = \mathbb{R} \\ 2) y, n^2 - 4n^2 + 4n + 1 & \quad R_f = \mathbb{R} \\ 3) y = \sqrt{n^2 - 4n^2 + 4n + 1} & \quad R_f = [0, +\infty) \\ 4) y, (n^2 - 4n^2 + 4n + 1)^2 & \quad R_f = [0, +\infty) \end{aligned}$	9
$\begin{aligned} 1) y = \frac{4n+1}{n-1} & \quad \text{ext } 3n^2 + 4n + 1 = 4n - 2y \Rightarrow 4n - 2y = -2y - 1 \\ \Rightarrow n(n-1) = -2y - 1 & \Rightarrow n = \frac{2y+1}{y-1} \quad R_f = \mathbb{R} - \frac{1}{2} \\ 2) y = \frac{4n+1}{n+1} & \quad R = \left\{ \frac{1}{2} \right\} \quad R_f = \mathbb{R} - \left\{ \frac{1}{2} \right\} \end{aligned}$	10