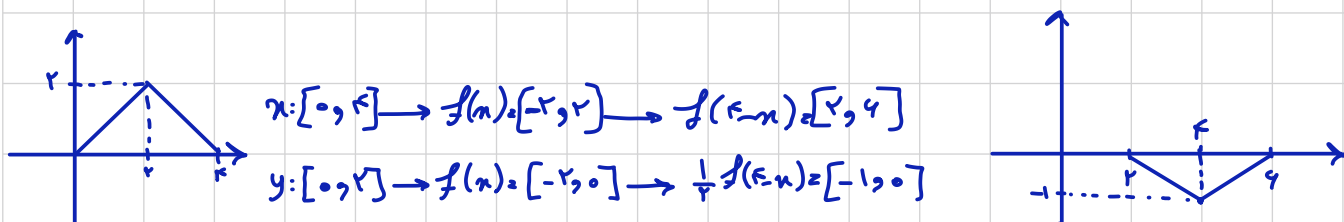


$$y = x - 2 + \sqrt{x - 4}, y = x \rightarrow x - 2 + \sqrt{x - 4} = x \rightarrow \sqrt{x - 4} = 2 \rightarrow x - 4 = 4 \rightarrow x = 8, y = 8$$

$$x_{f(n)} = [1, 12] \quad y_{f(n)} = [0, 2] \rightarrow S = \frac{2 \times 12}{2} = 12$$

$$x = 2x + a = 4 + a \quad y = a + 2x(-2) = -4 + a \rightarrow 2(4 + a) - 1 = -4 + a \Rightarrow a = -6$$



$$x: [0, 4] \rightarrow f(n) \in [-2, 2] \rightarrow f(4-n) \in [2, 4]$$

$$y: [0, 2] \rightarrow f(n) \in [-2, 0] \rightarrow \frac{1}{2} f(4-n) \in [-1, 0]$$

$$x_{f(n)} = -1, 2, \infty \rightarrow x_{f(n-1)} = 0, 1, 2$$

$$\begin{array}{c} -2 & 0 & 1 & 2 \\ - & + & - & + & - \end{array} \rightarrow D_{g(n)} = [-2, 0] \cup [1, 2]$$

$$f \circ g = \{(2, 4)(2, \infty)\} \rightarrow x \in D_g, g(n) \in D_f$$

$$f \circ g = \{(1, \infty)(\infty, \nu)(2, 1)\} \quad g \circ f = \{(2, 4)(2, 2)\} \rightarrow g \circ f - f \circ g = \{(2, 2)\}$$

$$0 \leq \sin^2 x \leq 1 \rightarrow -1 \leq -\sin^2 x \leq 0 \rightarrow f(-\sin^2 x) = 1 - \sin^2 x = \cos^2 x \xrightarrow{\cos^2 x \geq 0} f \circ f(\cos^2 x) = 1 - \cos^2 x = \sin^2 x \Rightarrow f \circ f(-\sin^2 x) = \sin^2 x$$

$$2f(2) = 2(2) + 2 = 8 \rightarrow f(2) = 4 \quad f(n) = 2n - 2 \quad f \circ f(n) = 2(2n - 2) - 2 = 4n - 4 - 2 = 4n - 8 \rightarrow y = 8$$

$$g \circ f(n) = (2n - 2)^2 - 2(2n - 2) + 1 = 4n^2 - 24n + 5$$

$$\rightarrow g \circ f(n) = f \circ g(n) \rightarrow 4n^2 - 24n + 5 = 0 \rightarrow S^2 - 6p = 100 - 372 = 93$$

$$f \circ g(n) = 2(n^2 - 2n + 1) - 2 = 2n^2 - 4n + 11$$