

نام و نام خانوادگی: صبر کمالی پاسخنامه تشریحی تکلیف شماره ۱ کلاس دهم ۱۳

از ۶ تا ۵ تقریبی شد $\Rightarrow f(n) = [-6, 5]$

$y = \sqrt{n} f(n) \Rightarrow$

$\boxed{nf(n) \geq 0} \Rightarrow$

$\begin{cases} n > 2 \Rightarrow n > 0, f(n) \geq 0 \Rightarrow \sqrt{nf(n)} \geq 0 \\ -\infty < n < -6 \Rightarrow n < 0, f(n) < 0 \Rightarrow \sqrt{nf(n)} < 0 \\ 0 \leq n \leq 5 \Rightarrow n \geq 0, f(n) \leq 0 \Rightarrow \sqrt{nf(n)} \leq 0 \\ 2 < n < 0 \Rightarrow n < 0, f(n) < 0 \Rightarrow \sqrt{nf(n)} < 0 \end{cases}$

$D_f = [-\infty, 0] \cup [2, \infty]$

$f(n) \neq 0$

$\frac{-n}{f(n)} \geq 0$

$f(n) = 0 = \{-3, 0, 4, \infty\}$

$D_f = (-3, 0] \cup (4, \infty)$

اعداد صحیح این $-3, -1, 3, 4$

$\boxed{D_f = \{-3, -1, 3, 4\}}$

$f(n) = 2f(r) = n^2 - 3n + r \Rightarrow f(r) = \frac{n^2 - 3n + r}{2}$

$f(r) - 2f(r) = r^2 - 3(r) + r$

$-f(r) = r \Rightarrow f(r) = -r$

$f(-r) - 2f(r) = f(r)^2 - 3r + r + r$

$f(-r) - 2r - r = 1r \Rightarrow f(-r) = 10$

$f(n) = \begin{cases} n - \sqrt{n+1} & n > 3 \\ 2n+3 & n \leq 3 \end{cases} \Rightarrow f(5) = 5 - \sqrt{6} = 2$

$f(f(5)) = f(2) \Rightarrow f(r) = 2 \times 2 + 3 = 7$

$f(f(5)) + f(f(1)) = 7 + 2 = 9$

$f(1) = 2 \times 1 + 3 = 5$

$f(n) = an^2 - bn + 2 \Rightarrow f(n-1) = a(n-1)^2 - b(n-1) + 2$

$\Rightarrow an^2 - 2an + a - bn + b + 2 = f(n-1) - f(n) = (2a)n + a + b$

$-2a = 2 \Rightarrow a = -1$

$a + b = 2 \Rightarrow -1 + b = 2 \Rightarrow b = 3$

$+a - b = -1 - 3 = -4 \rightarrow \frac{-4}{-1} = 4$

$$f(n) = n^2 - 3n + 1 \Rightarrow f(2) = 4 - 6 + 1 = -1 \quad \left. \begin{array}{l} f(1) = 1 - 3 + 1 = -1 \\ f(-1) = 1 + 3 + 1 = 5 \end{array} \right\} \rightarrow 1 + 2 + 4 = 7 \quad \text{①}$$

$$f'(n) = 2n - 3 \Rightarrow f'(2) = 4 - 3 = 1 \rightarrow \text{مخرج ②} \quad \text{①, ②} \Rightarrow \frac{4}{1} = 4$$

$$f(n) = \begin{cases} 3n+1 & n > 2 \\ n^2 & n < 2 \end{cases} \Rightarrow \left. \begin{array}{l} f(3) = 3(3) + 1 = 10 \\ f(-2) = (-2)^2 = 4 \\ f(2) = 3(2) + 1 = 7 \end{array} \right\} \rightarrow \frac{(3 \times 10)(2 \times 4)}{7} = \frac{240}{7}$$

$$f = \{(2, 4), (4, 2), (1, 1), (1, 4)\} \Rightarrow f(f) = 1$$

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

$$f(n) = \frac{n^2 + f(n+9)}{n^2 + f(n+2)} \Rightarrow z = \sqrt{3} - 2 \Rightarrow z^2 = (\sqrt{3} - 2)^2 = 7 - 4\sqrt{3}$$

$$\Rightarrow f(z) + z^2 + 9 = (7 - 4\sqrt{3}) + 3(\sqrt{3} - 2) + 9$$

$$f(f(\sqrt{3} - 2)) = \frac{1}{f} \Rightarrow 7 - 4\sqrt{3} + 3\sqrt{3} + 1 = 8 - \sqrt{3} \Rightarrow \text{مخرج كسر}$$

$$f(2) = \frac{f+1+9}{f+1+2} = \frac{21}{12}$$

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

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

$$\left(n^2 + 2 + \frac{1}{n^2} \right) - \left(n^2 + \frac{1}{n^2} \right) = 2 \rightarrow \text{جواب}$$