

کلاس: یازدهم دختر C

تکلیف شماره: ۶

نام و نام خانوادگی: فاطمه زهرا جمال زاده

$$f(n) = \begin{cases} (n+1)(n+2) & n > 1 \\ 2n+2 & n \leq 1 \end{cases}$$

$$2f(n) = f(-2) + a \rightarrow$$

$$f(-2) = 3a - 2$$

$$2f(n) = 5a - 4$$

$$f(n) = 2a - 2 \rightarrow 2a - 2 = (n+1)2$$

$$2a - 2 = 2n + 2$$

$$a = \frac{-9}{2} = -4.5$$

$$\left. \begin{aligned} A &= \sqrt{2-\sqrt{3}} \\ B &= \sqrt{2+\sqrt{3}} \end{aligned} \right\} \rightarrow \begin{aligned} A &= \frac{1}{B} \\ B &= \frac{1}{A} \end{aligned}$$

$$f(A) = A + \frac{B}{A} + 2$$

$$f(B) = B + \frac{A}{B} + 2$$

$$\rightarrow f(A) + f(B) = 2A + 2B + 2 = 2\sqrt{4} + 2$$

$$\rightarrow 2(A+B) + 2 = (A+B)^2 = A^2 + B^2 + 2AB$$

$$= 2 - \sqrt{3} + 2 + \sqrt{3} + 2(1) = 4$$

$$\rightarrow (A+B)^2 = 4 \rightarrow A+B = \sqrt{4}$$

$$A \times B = \sqrt{4-3} = 1$$

$$\begin{aligned} (2f(n) - 3f(-n) &= 5n^2 - n) \times 2 \\ (2f(-n) - 3f(n) &= n + 5n^2) \times 2 \end{aligned}$$

$$\rightarrow \begin{aligned} 4f(n) - 6f(-n) &= 10n^2 - 2n \\ 4f(-n) - 6f(n) &= 2n + 10n^2 \end{aligned}$$

$$\rightarrow -2f(n) = 20n^2 + 2n$$

$$f(n) = -10n^2 - n$$

$$n=0 \rightarrow 2f(0) = 3m-1$$

$$n=-2 \rightarrow 4f(0) = 2m+12$$

$$9m-2 = 2m+12$$

$$f(0) = \frac{3m-1}{2} \xrightarrow{m=\frac{9}{7}} f(0) = \frac{25}{14}$$

$$m = \frac{9}{7}$$

$$f(n) + f\left(\frac{1}{n}\right) = \frac{3n^2 - 12n + 3}{n} \xrightarrow{n=1} 2f(-1) = \frac{3+12+3}{-1} \Rightarrow f(-1) = -9$$

$$Df = Dg = (-\infty, 1]$$

$$g_n = -\sqrt{(1-n)^2} = (n-1)\sqrt{1-n} \Rightarrow g_n = f_n$$

$$\Rightarrow \text{تابع برابرند}$$

$$f(x) = x\sqrt{x}$$

$$g(x) = \sqrt{x^3}$$

$$Dg = Df = [0, +\infty)$$

$$f(x) = g(x) \rightarrow \text{تابع‌های یکسان} \Rightarrow$$

~~تابع‌های برگشتی~~

و

(v)

$$f(x) = [\sqrt{x} - \lfloor \sqrt{x} \rfloor] \rightarrow f_{x=0} \rightarrow Df = [0, +\infty)$$

$$g(x) = \sqrt{x - |x|} \rightarrow \begin{pmatrix} + \\ 0 \\ - \end{pmatrix} \rightarrow Dg = [0, +\infty) \rightarrow g_{x=0}$$

$$\Rightarrow Df = Dg$$

و

~~تابع‌های برگشتی~~

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

(9)

ب) $\frac{f(2) + g(2)}{f(2) - g(2)} = \frac{2+2}{2-2} = \frac{4}{0} \rightarrow (2, 0)$

ج) $f(1)g(-1) = 0 \times (1) = 0$

الف) $g(x) = f(x-1) \rightarrow g(x) = \{(1, 1) (0, 2) (\frac{1}{4}, 3) (\frac{1}{9}, 2) (\frac{1}{16}, -1)\}$

(12)

ب) $h(x) = f(|x|) = \{(0, 3) (1, -1) (2, 1) (-2, -1) (-1, 1)\}$

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