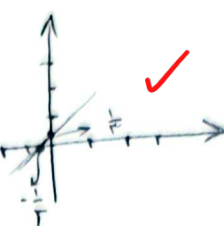


۱۸۲۵

نام و نام خانوادگی عیسیا امینی پاسخنامه تشریحی تکلیف شماره ۱۵ کلاس دوره A	
$2y = 3n - 1 \rightarrow 2n = 3y - 1 \rightarrow \frac{2n+1}{3} = y$ $\frac{2n+1}{3} = y$ $n=0 \rightarrow y = \frac{1}{3}$ $n = \frac{1}{2} \rightarrow y = 0$ این بار تقسیم بر ۲ بودی! $S_{\Delta} = \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$ 	۱, ۷۵ ۱
$y = n^2 - 2n + 3$ $y = (n-1)^2 + 2$ $x = (y-1)^2 + 2 \rightarrow y = \sqrt{n^2 + 1}$ $\lim_{n \rightarrow \infty} \frac{y}{n} = \frac{1}{2} = 1$ $y_5 = 1 - 2 + 3 = 2$ $D = [2, +\infty)$	۲ ۲
$y = n^2 - 2n + 3$ $y = (n-1)^2 + 2$ $y = \sqrt{n^2 + 1}$ $\lim_{n \rightarrow \infty} \frac{y}{n} = \frac{1}{2} = 1$ $D = [2, +\infty)$	۳ ۲
$f(n) = 2n - \sqrt{14 - 6n(5-n)}$ $2n - \sqrt{(n-5)^2} = 2n - n-5$ $(n-5)^2 \geq 0 \rightarrow$ $n = 5y - 2$ $\frac{9x+6}{6} = y \rightarrow y = \frac{3}{2}x + 1$ $n = 6 \rightarrow y = 2$ $n = 5 \rightarrow y = 0$	۴ ۲
$y = \frac{n}{\sqrt{n^2 - 2}}$ $(n_1, y_1) \rightarrow y_1 \rightarrow \frac{n_1}{\sqrt{n_1^2 - 2}}$ $(n_2, y_2) \rightarrow y_2 = \frac{n_2}{\sqrt{n_2^2 - 2}}$ $n_1^2 n_2^2 - 2n_1^2 = n_1^2 n_2^2 - 2n_2^2 \rightarrow n_1^2 = n_2^2 \rightarrow n_1 = \pm n_2$ $y = \frac{\sqrt{2}n}{\sqrt{n^2 - 1}}$ $g(n) = \begin{cases} n^2 - 2n + k & n \geq 2 \\ n^2 + 4n + 3k & n < 2 \end{cases}$ $\min n = 2 \rightarrow 2 - 2 + k = k - 2$ $\max n = 2 \rightarrow -2 + 4 + 3k = 3k + 2$	۵ ۲

$f(n) = \frac{r}{n} + n $ $\begin{array}{c c} r/n & \varepsilon n \\ \hline \downarrow & \downarrow \\ \frac{1}{r}n & \frac{1}{\varepsilon}n \end{array} \quad f^{-1}$	$g(n) = \frac{(a-b)n}{(a+b)n}$ $(a-b)n = \frac{1}{r}n \rightarrow a-b = \frac{1}{r}$ $(a+b)n = \frac{1}{\varepsilon}n \rightarrow a+b = \frac{1}{\varepsilon}$ $ab = \frac{1}{r} \times \frac{1}{\varepsilon} = \frac{1}{r\varepsilon} \quad \checkmark$ $ra = \frac{1}{\varepsilon} \rightarrow a = \frac{1}{r\varepsilon} \quad \checkmark$	$a+b = \frac{1}{\lambda}$ $\frac{r}{\lambda} \rightarrow b = \frac{1}{\lambda} - \frac{r}{\lambda} \quad \checkmark$ $ra = \frac{1}{\varepsilon} \rightarrow a = \frac{1}{r\varepsilon} \quad \checkmark$	۲
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$f(n) = \frac{r}{n} + \varepsilon \rightarrow n = r \rightarrow y = -10$ $\frac{y+\varepsilon}{r+\varepsilon} = -10 \rightarrow -r-m = 1$ $-m = r \rightarrow m = -r$ $y = f \circ f^{-1}(n) = f^{-1}(n) \rightarrow n + f(n) \rightarrow n + \frac{r}{n} + \varepsilon$ $n + \frac{r}{n} + \varepsilon = n \rightarrow \frac{r}{n} + \varepsilon = 0 \rightarrow n = \frac{-\varepsilon}{r} \quad \checkmark$	$f(n) = \frac{r}{n} + \varepsilon$ $a+d=0$ $r-r=0$ $f(n) = f^{-1}(n) \quad \checkmark$	۲
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$f(r-n) = r - g\left(\frac{n}{r}\right) \quad f(r-n) = t \rightarrow f^{-1}(t) = r-n$ $r - g\left(\frac{n}{r}\right) = t \rightarrow g\left(\frac{n}{r}\right) = r-t \rightarrow g^{-1}(r-t) = \frac{n}{r} \rightarrow n = \varepsilon g^{-1}(r-t)$ $f^{-1}(t) = r-n \rightarrow f^{-1}(t) = r - \varepsilon g^{-1}(r-t) \xrightarrow{t=r} f^{-1}(r) = r - \varepsilon g^{-1}\left(\frac{\varepsilon}{r}\right)$ $\varepsilon g^{-1}(\varepsilon) + f^{-1}(r) = \varepsilon g^{-1}(\varepsilon) + r - \varepsilon g^{-1}\left(\frac{\varepsilon}{r}\right) = r \quad \checkmark$	۲
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$y = \frac{\omega n - 1r}{1-n} \rightarrow -y = \frac{-\omega n - 1r}{1+n} \rightarrow y = \frac{\omega n + 1r}{n+1}$ $\xrightarrow{\text{تبدیل به } y} y = \frac{\omega(n-r) + 1r}{n-r+1} \xrightarrow{\text{تبدیل به } y} y = \frac{\omega(n-r) + 1r}{n-1} - r \rightarrow y = \frac{r}{n-1} + \frac{y}{n-1} = f(n)$ $f(n) = \frac{r}{n-1} \quad f^{-1}(n) = \frac{n+r}{n-1}$ $\left. \begin{array}{l} f(n) = \frac{r}{n-1} \\ f^{-1}(n) = \frac{n+r}{n-1} \end{array} \right\} \rightarrow \frac{r(n+r)}{n-1} = \frac{n+r}{n-1} \rightarrow r(n+r) = n+r$ $r^2n + r^2r = n+r \rightarrow r^2n - r^2r = n+r \rightarrow r^2n - n = r+r \rightarrow n(r^2-1) = 2r \rightarrow n = \frac{2r}{r^2-1} \quad \checkmark$	۲
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$f^{-1}(n) = g(n) \Rightarrow n = y + \varepsilon[y]$ $[n] = [y + \varepsilon[y]] \rightarrow [n] = [y] + \varepsilon[y] = \omega[y] \quad \text{جایگاه اول عوض}$ $f(n) = y$ $y = n + f[n] \xrightarrow{\text{A}} y = n + \varepsilon(\omega[y]) = n + r_0[y]$ $\xrightarrow{\text{جایگاه اول عوض}} n = y + r_0[n] \rightarrow n - r_0[n] = y \quad \left\{ \begin{array}{l} (f^{-1}(n) = y) \rightarrow n + f[n] = n + r_0[n] \\ \Rightarrow r_0[n] \end{array} \right.$	۵/۵
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$y = n + r \frac{[y]}{\omega} \rightarrow n = y - r \frac{[y]}{\omega} \xrightarrow{\text{جایگاه اول عوض}} y = n - r \frac{[n]}{\omega}$

$(f - g)(n) = n + r \frac{[n]}{\omega} - n + r \frac{[n]}{\omega} = r \frac{[n]}{\omega}$