

نام و نام خانوادگی کلاس پاسخنامه تشریحی تکلیف شماره کیاریکشی رضایی	۱ $2f(a) = f(-r) + a \xrightarrow{a=1} f(a) = (a+1)(a+1) = 2a+2 \rightarrow f(a) = 2a+2$ $\xrightarrow{-2 \leq 1} f(-r) = 2a+2(-r) = 2a-2 \rightarrow 2f(a) = 2a+2 = 2a-2-a \rightarrow$ $12a+12 = 2a-2 \rightarrow 10a = -14 \rightarrow \boxed{a = -1.4}$
۲ $(2+\sqrt{3}) + (2-\sqrt{3})(2-\sqrt{3}) = 2+2\sqrt{3} \rightarrow 2 \xrightarrow{\text{جمع ریشه ها}} \sqrt{2}$ $\sqrt{(2+\sqrt{3})(2-\sqrt{3})} = 1 \rightarrow f(2+\sqrt{3}) + f(2-\sqrt{3}) = \sqrt{2} + \sqrt{2} + 2 + 2 = \boxed{4+2\sqrt{2}}$	۳ $2x(f(x) - r^2 f(-x)) = rx^2 - x \xrightarrow{x=-x} f(f(x)) - r^2 f(-x) = rx^2 - rx$ $(r^2 f(-x) - r^2 f(x) = rx^2 + x) \times r^2 \rightarrow r^2 f(-x) - r^2 f(x) = rx^2 + rx$ $-of(x) = rx^2 + x \rightarrow \boxed{f(x) = -rx^2 - \frac{x}{2}}$
۴ $f(x) = ax+b \rightarrow f(x+r) = a(x+r) + b = ax+ra+b \xrightarrow{\text{جایگزینی}}$ $(x+r)(ax+b) - r^2 x(ax+ra+b) \rightarrow ax^2 + rax + xb + rb - r^2 ax^2 -$ $r^2 ax^2 = rx^2 \rightarrow -ra = r \rightarrow \boxed{a = -1}$ $rb = r^2 m - 1 \rightarrow r^2(b-r) - 1 = r^2 b - r^2 a = r^2 b \rightarrow r^2 b = ra \rightarrow \boxed{b = \frac{ra}{r^2}} \rightarrow f(0) = b = \frac{ra}{r^2}$ $-ra - r^2 b = -m \rightarrow 1 - r^2 b = -m \rightarrow r^2 m = r^2 b - 1 \rightarrow \boxed{b = \frac{ra}{r^2}}$	۵ $\frac{1}{x} = \frac{a}{x} + b \rightarrow f(x) + f\left(\frac{1}{x}\right) = ax + b + \frac{a}{x} + b = \frac{ax^2 + bx + a}{x} \rightarrow$ $ax^2 = r^2 x^2 \rightarrow a = r$ $1bx = -1r^2 x \rightarrow rb = -1r \rightarrow b = -1$ $a=r$ $f'(x) = ax + b \rightarrow r^2 x - 1 \rightarrow f(-1) = -r - 1 = \boxed{-9}$

$$f(x) = (x-1)\sqrt{1-x} \rightarrow x \leq 1$$

$$g(x) = \sqrt{(1-x)^2} \rightarrow (1-x)\sqrt{1-x} \rightarrow x \leq 1$$

$$1-x = -(x-1) \rightarrow \text{دامنه ها برابر$$

$$f(x) = g(x)$$

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$$x\sqrt{x} \rightarrow x \geq 0$$

$$\sqrt{x^2} \rightarrow x\sqrt{x} \rightarrow x \geq 0 \left. \vphantom{\sqrt{x^2}} \right\} D_f = D_g \rightarrow f(x) = g(x)$$

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$$[\sqrt{x} - [\sqrt{x}]] \rightarrow [\sqrt{x}] \leq \sqrt{x} < \sqrt{x} + 1 \rightarrow 0 \leq \sqrt{x} - [\sqrt{x}] < 1 \rightarrow \sqrt{x} \geq 0$$

$$\sqrt{x-x^2} \rightarrow |x| \leq x$$

$$D_g = \mathbb{R} \text{ همیشه درست}$$

$$\rightarrow g(x) \neq f(x)$$

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$$\left(\frac{f+g}{f-g} \right)(x) = \frac{f(x)+g(x)}{f(x)-g(x)} \rightarrow \left. \begin{matrix} f(1)=2 \\ g(1)=1 \end{matrix} \right\} \rightarrow \frac{2+1}{2-1} = \frac{3}{1} = 3$$

$$x=2 \rightarrow \left. \begin{matrix} f(2)=3 \\ g(2)=2 \end{matrix} \right\} \rightarrow \frac{3+2}{3-2} = \frac{5}{1} \rightarrow \text{تعریف شده}$$

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$$g(-1)=1 \rightarrow f(0) \times 1 = 0$$

$$2x-1=-2 \rightarrow x=-\frac{1}{2}$$

$$2x-1=0 \rightarrow x=\frac{1}{2}$$

$$2x-1=-1 \rightarrow x=0$$

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

$$2x-1=2 \rightarrow x=1$$

$$f(1)=1 \rightarrow (1, 1)$$

$$2x-1=3 \rightarrow x=\frac{4}{2}$$

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

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

قسمت ب = قسمت الف