

نام و نام خانوادگی کلاس شماره پاسخنامه تشریحی تکلیف شماره کلاس
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$$f(-2) + a = 2a - f + a = f_a - f$$

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

$$2f(5) = f(-2) + a$$

$$14a+14 = f_a - f$$

$$10a = -14$$

$$a = -\frac{14}{10}$$

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$$1-\sqrt{2} = \frac{1}{1+\sqrt{2}} \rightarrow \sqrt{1+\sqrt{2}} = t / \sqrt{1-\sqrt{2}} = \frac{1}{t}$$

$$\left. \begin{aligned} f(1+\sqrt{2}) &= t + \frac{1}{t} + 2 \\ f(1-\sqrt{2}) &= \frac{1}{t} + t + 2 \end{aligned} \right\} 2 \times \left(t + \frac{1}{t} + 2 \right) \rightarrow \left(t + \frac{1}{t} \right)^2 \leftarrow t^2 + \frac{1}{t^2} + 2$$

$$t^2 = 1+\sqrt{2} / \frac{1}{t^2} = 1-\sqrt{2} \rightarrow t^2 + \frac{1}{t^2} = 1+\sqrt{2} + 1-\sqrt{2} = 2 \text{ پس } \left(t + \frac{1}{t} \right)^2 = 4$$

$$t + \frac{1}{t} = \sqrt{4} \text{ پس } \rightarrow 2 \text{ یا } -2$$

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$$\text{if } \rightarrow -x = 2f(-x) - 2f(x) = f(-x)^2 - (-x) \times 2$$

$$\text{if } \rightarrow x = 2f(x) - 2f(-x) = f(x)^2 - x \times 2$$

$$+ \frac{f(-x)^2 - f(x)^2}{f(-x) - f(x)} = 12x^2 + 12x$$

$$\frac{f(x)^2 - f(-x)^2}{f(x) - f(-x)} = 12x^2 - 12x$$

$$-2f(x) = 10x^2 + 2x$$

$$f(x) = -5x^2 - x$$

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$$x=0 \leftarrow 2f(0) = 2m-1$$

$$x=-2 \rightarrow 4f(0) = 16 + 2m + 2m - 1 = 15 + 4m \rightarrow 4f(0) = (15 + 4m) \div 4$$

$$f(0) = \frac{2 \times \frac{9}{4} - 1}{2} \quad \frac{2 \times 17}{2} = 17 \div 2 - 1$$

$$\frac{17 \div 2}{2} = 9 \div 2$$

$$2f(0) = 15 + \frac{4}{2}m$$

$$15 + 2m = 2m - 1$$

$$-\frac{4}{2}m = -9 \quad m = \frac{18}{4} = 4.5$$

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$$f(x) = ax + b \rightarrow f\left(\frac{1}{x}\right) = a\left(\frac{1}{x}\right) + b \xrightarrow{+} f(x) + f\left(\frac{1}{x}\right) = ax + 2b + \frac{a}{x}$$

$$\frac{2x^2 + 12x + 17}{x} = 2x + 12 + \frac{17}{x} = ax + 2b + \frac{a}{x}$$

$$a=2 \text{ و } 2b=12 \rightarrow b=6 \rightarrow \text{پس } f(x) = 2x + 6 \rightarrow f(-1) = -2 + 6 = 4$$

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$$\text{اولی (راستی)} \rightarrow 1-x \geq 0 \rightarrow x \leq 1 \leftarrow (x-1) = -(1-x) \rightarrow -(1-x)\sqrt{1-x}$$

$$g(x) \leftarrow -\sqrt{(1-x)} \times (1-x) = -(1-x)\sqrt{1-x}$$

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

$1-x \geq 0$
پیش فرض

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

$$g(x) = \sqrt{x^2} = x^2 \geq 0 \rightarrow x \geq 0 \rightarrow \sqrt{x^2} \times \sqrt{x} = x\sqrt{x}$$

پیش فرض
هست

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

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

$$\rightarrow [\sqrt{x} - [\sqrt{x}]] = 0 \rightarrow f(x) = 0$$

$$g(x) \xrightarrow{x \geq 0} x \geq 0 \rightarrow g(x) = 0$$

تعریف نشده

$$\rightarrow g(0) = 0 \quad g = f$$

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$$\text{الف) } \left(\frac{f+g}{f-g} \right)(x) = \frac{f(x)+g(x)}{f(x)-g(x)} \xrightarrow{x=1} \frac{2+1}{2-1} = \frac{3}{1} = 3$$

$$\text{ب) } \left(\frac{f+g}{f-g} \right)(x) = \frac{f(x)+g(x)}{f(x)-g(x)} \rightarrow \frac{2+2}{2-2} = 0 \rightarrow \text{تعریف نشده}$$

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$$\text{ج) } f(0) = 0 \rightarrow 0 \times 1 = 0$$

$$g(-1) = 1$$

الف)

$$2x-1=2 \rightarrow x=1 \rightarrow f(1)=1, g(1)=1$$

$$2x-1=-1 \rightarrow x=0 \rightarrow f(0)=2, g(0)=2$$

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

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

$$2x-1=2 \rightarrow x=\frac{3}{2} \rightarrow f\left(\frac{3}{2}\right)=1, g\left(\frac{3}{2}\right)=1$$

$$g = \left\{ (1,1), (0,2), \left(\frac{1}{2},0\right), \left(\frac{1}{2},0\right), \left(\frac{3}{2},1\right) \right\}$$

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$$\text{ب) } 0 \leq x \leq 2 \rightarrow |x| = 0 \rightarrow x=0 \rightarrow f(0)=0, h(0)=0$$

$$|x|=1 \rightarrow x=\pm 1 \rightarrow f(1)=1, h(-1)=1, h(1)=1$$

$$|x|=2 \rightarrow x=\pm 2 \rightarrow f(2)=-1, h(-2)=-1, h(2)=-1$$

$$h = \left\{ (0,0), (1,1), (-1,1), (2,-1), (-2,-1) \right\}$$