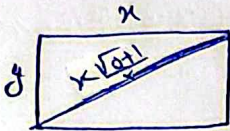


$$\frac{S_{\text{مربع}}}{S_{\text{مربع}}} = \frac{(d+x) \cdot x}{d \cdot x} = \frac{2\sqrt{d+2}}{d} = \frac{1}{2}\sqrt{d+2} + \frac{1}{2}$$

$$\Rightarrow d+x = x \left(\frac{\sqrt{d+2}}{2} \right) = 2\sqrt{d+2}$$

۱ (۲)



$$\Rightarrow x^2 \left(\frac{2+\sqrt{d}}{2} \right) = x^2 + d^2 \Rightarrow \frac{2+\sqrt{d}}{2} = 1 + \frac{d^2}{x^2}$$

$$\Rightarrow \frac{1+\sqrt{d}}{2} = \frac{d^2}{x^2} \Rightarrow \frac{x^2}{d^2} = \frac{2}{1+\sqrt{d}}$$

۲ (۲)

$$\sqrt{a^2+ca} = 2-ca \Rightarrow a^2+ca = 4a^2-4ca+ca$$

$$\rightarrow va^2 - 4ca + c = 0 \rightarrow a^2 - 4ca + ca = 0 \rightarrow (a-4c)(a-c) = 0$$

$$\frac{a+1}{a} = \frac{2}{2+1} = \frac{2+2}{2} = \frac{4}{2} = 2 < f/d \checkmark$$

۳ (۲)

$$\frac{\sqrt{n+1}(2-\sqrt{n-1}) - \sqrt{n+1}(2+\sqrt{n-1})}{(2+\sqrt{n-1})(2-\sqrt{n-1})} = \frac{n-1}{\sqrt{n-1}} \rightarrow \frac{-\sqrt{n^2-1} - \sqrt{n^2-1}}{4-n+1} = \frac{\sqrt{n-1}\sqrt{n-1}}{\sqrt{n-1}}$$

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

۴ (۲)

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

$$\Rightarrow \frac{-2\sqrt{2-n}}{2+n} = \frac{2-n}{2\sqrt{2-n}} \rightarrow -1 \cdot (2-n) = (2-n)(2+n)$$

$$\rightarrow -1 = 2+n \rightarrow n = -12$$

۵ (۲)

$$\frac{1}{x^2} + \frac{1}{x^2 - 2x + 1} = \frac{14}{9} \Rightarrow \frac{x^2 - 2x + 1 + x^2}{x^2 - 2x^2 + x^2} = \frac{14}{9} \Rightarrow \frac{2x^2 - 2x + 1}{x^2 - 2x^2 + x^2} = \frac{14}{9}$$

$\rightarrow 14 \cdot x^2 - 28x + 14 = 9 \cdot x^2 - 18x + 9$
 $\Rightarrow 5x^2 - 10x + 5 = 0 \Rightarrow x^2 - 2x + 1 = 0 \Rightarrow (x-1)^2 = 0 \Rightarrow x = 1$
 مطلقاً قسیم ویت برای دست آوردن مجموع ریشه‌ها
 چون ریشه‌ها یکی هستند باید جمع می‌شوند
 $\Rightarrow -\frac{b}{a} = \frac{22}{14} = \frac{11}{7}$ ✓

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۶

$(1) \Rightarrow - (x^2 - 9x + 1) > 0 \Rightarrow - (x-4)(x-2) > 0$

$(2) \Rightarrow -x^2(x-4) + 20(x-4) > 0 \rightarrow (x-4)(-x^2+20) > 0 \Rightarrow (x-4)(-x+0)(x+0) > 0$

$\Rightarrow (1) \frac{2}{-1+1-}$

$(2) \frac{-5}{+1-1+1-}$

$\Rightarrow (1) \wedge (2) = \frac{4}{9}$ ✓
 دو بار در معادله صدق می‌کنند و درست است $g = \frac{4}{9}$ ✓

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$|x+2| + |x-1| = \frac{17-x}{3}$

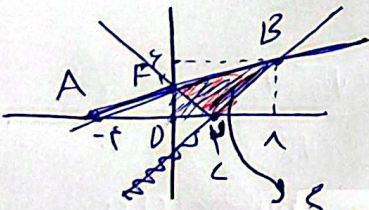
$\frac{-2}{-1-2x+1} = \frac{1}{3} \mid \frac{1}{2x+1} = \frac{17-x}{3}$

$x = -5 \checkmark \quad x = 1 \checkmark \quad \sqrt{x=4} \quad x = 4 \checkmark$
 $g = \frac{1}{9} \quad g = \frac{4}{9}$

$\Rightarrow \sqrt{(x-4)^2} = \sqrt{36+4} = \sqrt{40} = 2\sqrt{10}$ ✓

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$\sqrt{(x-2)^2} = x-2$

$\frac{1}{2}x+2 = x-2 \rightarrow x=8 \quad g=6$

$S_{\text{مربع}} = S_{\triangle ABC} - S_{\triangle AFC} = \frac{2 \times 2}{2} - \frac{2 \times 1}{2} = 1 - 1 = 0$ ✓

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مربع x

$\Rightarrow \frac{1}{x} + \frac{1}{x+9} = \frac{1}{2} \rightarrow 2 \cdot (x+9) + 2 \cdot x = x^2 + 9x$

مربع $x+9$

$\Rightarrow 2 \cdot x + 18 + 2 \cdot x = x^2 + 9x \Rightarrow x^2 - 2x - 18 = 0$

مربع 2

$(x-6)(x+3) = 0 \rightarrow x=6$ ✓

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