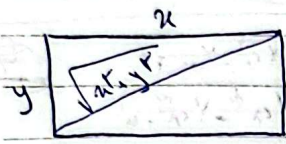


$$\frac{\text{طول}}{\text{عرض}} = \frac{5}{4} \rightarrow \frac{5+x}{4} = \frac{1+\sqrt{5}}{2} \rightarrow 5+x = 2+2\sqrt{5} \rightarrow x = 2\sqrt{5} - 3 \quad (1)$$

$$\Rightarrow x = 2\sqrt{5} - 3 \rightarrow \text{طول} = 5 + 2\sqrt{5} - 3 = 2 + 2\sqrt{5}$$

$$S_1 = 4 \times 5 = 20, S_2 = 4(2 + 2\sqrt{5}) = 8 + 8\sqrt{5} \rightarrow \frac{S_2}{S_1} = \frac{8 + 8\sqrt{5}}{20} = \frac{2 + 2\sqrt{5}}{5}$$



$$\frac{\text{مقدار}}{\text{طول}} = \frac{\sqrt{x^2 + y^2}}{x} = \frac{1 + \sqrt{5}}{2} \quad (2)$$

$$\rightarrow \sqrt{x^2 + y^2} = x(1 + \sqrt{5}) \rightarrow x^2 + y^2 = x^2(1 + \sqrt{5})^2$$

$$\rightarrow x^2 + y^2 = x^2 + 2\sqrt{5}xy + 5x^2 \rightarrow y^2 = 4x^2 + 2\sqrt{5}xy \rightarrow y = \frac{x^2 + x\sqrt{5}}{x} = x + \sqrt{5}$$

$$\text{نسبت} = \left(\frac{x}{y}\right)^2 = \frac{x^2}{y^2} = \frac{x^2}{x^2 + 2\sqrt{5}xy + 5x^2} = \frac{1}{1 + 2\sqrt{5}\frac{y}{x} + 5} = \frac{1}{6 + 2\sqrt{5}}$$

$$\rightarrow y = x \sqrt{\frac{1 + \sqrt{5}}{6 + 2\sqrt{5}}} \rightarrow \frac{y}{x} = \sqrt{\frac{1 + \sqrt{5}}{6 + 2\sqrt{5}}} = \sqrt{\frac{1 + \sqrt{5}}{2(3 + \sqrt{5})}} = \sqrt{\frac{1 + \sqrt{5}}{2(1 + \sqrt{5})^2}} = \frac{1}{1 + \sqrt{5}}$$

$$x + \sqrt{4x^2 + 5x} = r \rightarrow x + \sqrt{4x^2 + 5x} = -\sqrt{4x^2 + 5x} \quad (3)$$

$$4x^2 + 5x = 14x \rightarrow 4x^2 - 9x = 0 \rightarrow x(4x - 9) = 0 \rightarrow x = \frac{9}{4}$$

$$4x^2 - 14x + 5 = 0 \rightarrow x = \frac{14 \pm \sqrt{196 - 80}}{8} = \frac{14 \pm 8}{8} \rightarrow x = \frac{22}{8} = \frac{11}{4} \text{ or } x = \frac{3}{4}$$

$$\sqrt{4x^2 + 5x} = r - x$$

جواب این دو مورد می باشد

$$\frac{\sqrt{x+1}}{x+\sqrt{x+1}} = \frac{\sqrt{n+1}}{n+\sqrt{n+1}} = \frac{\sqrt{x^2+1}-\sqrt{n^2+1}}{10-n} = \frac{\sqrt{x^2+1}-\sqrt{n^2+1}}{n-10} \quad (4)$$

$$\frac{(\sqrt{n+1})(\sqrt{n+1})}{x+\sqrt{x+1}} = \frac{n+1}{x+\sqrt{x+1}}$$

$$\rightarrow \frac{n+1}{x+\sqrt{x+1}} = \frac{n+1}{n-10} \rightarrow x+\sqrt{x+1} = n-10 \rightarrow x = n-10-\sqrt{x+1}$$

$$x^2 - 24x + 44 = 0 \rightarrow x = \frac{24 \pm \sqrt{576 - 176}}{2} = \frac{24 \pm 20}{2} \rightarrow x = 2 \text{ or } x = 22$$

کتاب عالم

یازدهم بهار ۱۴۰۱

امید فرزخانی

$$\frac{1}{x+\sqrt{x-m}} - \frac{1}{x-\sqrt{x-m}} = \frac{x-m}{a\sqrt{x-m}}$$

(۱۷۵) ۵

تاریخچه + مرصعیم نه نماره!

$$\frac{x-\sqrt{x-m}-x-\sqrt{x-m}}{x+m} = \frac{-2\sqrt{x-m}}{x+m} = \frac{x-m}{a\sqrt{x-m}} \rightarrow (-2)(a) = x+m$$

$$-2a = x+m \rightarrow m = -12$$

~~$$\frac{1}{m^2} + \frac{1}{(1-m)^2} = \frac{(1-m)^2 + m^2}{m^2(1-m)^2} = \frac{1-m^2+m^2}{m^2(1-m)^2} = \frac{1}{m^2(1-m)^2}$$~~

~~$$\frac{x^2 - x_{m+1}}{x^2 - x_m + a^2} = \frac{14}{9}$$~~

$$\frac{1}{m^2} + \frac{1}{(1-m)^2} = \frac{(1-m)^2 + m^2}{m^2(1-m)^2} = \frac{x^2 - x_{m+1} + a^2}{x^2 - x_m + a^2} = \frac{14}{9}$$

$$\frac{x^2 - x_{m+1}}{x^2 - x_m + a^2} = \frac{14}{9} \rightarrow 14m^2 - 14m + 9 = 14, a^2 - 320a^2 + 140a^2$$

$$140x^2 - 320x^2 + 140x^2 + 140m + 9 = 0 \rightarrow S = \frac{-b}{a} = \frac{320}{140} = \frac{16}{7}$$

~~$$140m^2 - 320m + 140m + 9 = 0$$~~

داده شده $\rightarrow$ حل مسئله

(I) $-m^2 + 4m - 1 \geq 0 \rightarrow m \in [1, 3]$

(II) $-m^2 + 6m^2 + 20m - 100 \geq 0 \rightarrow m \in [2, 5] \mid m \in [-5, 0]$

I $\cap$ II $\Rightarrow m = 2$

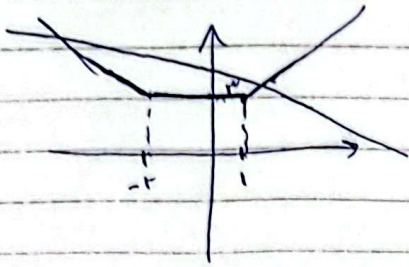
$m = 2$ جواب $\rightarrow$ جواب = 4 $\rightarrow$ پاسخ صحیح

تکلیف عدد ۱۸

باز هم به آید

اصحیح بنده خواست

Year: Month: Date: ()



$$3y + m = 14 \rightarrow y = \frac{m-14}{3}$$

(1, 5) (1)

$$y = |m+2| + |m-1| \rightarrow \begin{cases} m+2+m-1 = 2m+1 \\ -m-2-m+1 = -2m-1 \\ m+2-m+1 = 3 \end{cases}$$

$$(1) \rightarrow 3(-2m-1) + m = 14 \rightarrow -4m - 3 + m = 14 \rightarrow -3m = 17 \rightarrow m = -\frac{17}{3}$$

$A(-\frac{17}{3}, 5)$ ✓

$$(2) \rightarrow 3(2m+1) + m = 14 \rightarrow 4m + 3 + m = 14 \rightarrow 5m = 11 \rightarrow m = \frac{11}{5}$$

$B(\frac{11}{5}, 5)$ ✓

$$AB = \sqrt{\left(\frac{11}{5} - (-\frac{17}{3})\right)^2 + (5 - 5)^2} = \sqrt{\left(\frac{11}{5} + \frac{17}{3}\right)^2} = \sqrt{\left(\frac{33 + 85}{15}\right)^2} = \sqrt{\left(\frac{118}{15}\right)^2} = \frac{118}{15}$$

$2\sqrt{10}$

$$y = \sqrt{m^2 - 8m + 2} = \sqrt{(m-4)^2} = |m-4|$$

(4)

$$m-4 = \frac{1}{5}m + 2 \rightarrow m = 10 \rightarrow y = 4 \rightarrow (10, 4)$$

(2)

$$m-4 = -\frac{1}{5}m - 2 \rightarrow m = 0 \rightarrow y = 2 \rightarrow (0, 2)$$

این دو نقطه را به هم وصل می‌کنیم

مسئله اول $\rightarrow$ مساحت = $2 \times 0 = 0$

ارتفاع = $(\frac{1}{5})(0) + 2 = 2$

$\left\{ \frac{1}{5} \times 2 \times 0 = 0 \right\}$

مسئله دوم $\rightarrow$ مساحت = $10 \times 4 = 40$

ارتفاع = مساحت اول = 2

$\left\{ \frac{1}{5} \times 4 \times 0 = 0 \right\}$

$$S_T = 40 + 0 = 40$$

✓

$$\text{فرجه} = x + 9$$

$$\text{میز} = x$$

$$\rightarrow \text{مساحت} \rightarrow \frac{1}{2} \times (x + 9) \times x = \frac{x^2 + 9x}{2}$$

$$\rightarrow \text{مساحت} \rightarrow \frac{x^2 + 9x}{2} = 10 \rightarrow x^2 + 9x - 20 = 0$$

$$x^2 + 9x - 20 = 0 \rightarrow x = 4, -5$$

✓