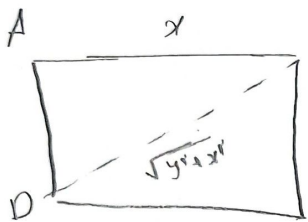


$$S_1 = \text{عرض} \times \text{طول} = 5 \times 4 = 20$$

$$\frac{x}{4} = \frac{1+\sqrt{5}}{2} \Rightarrow 2x = 4 + 4\sqrt{5} \Rightarrow x = 2 + 2\sqrt{5}$$

$$S_2 = 4 \times (2 + 2\sqrt{5}) = 8 + 8\sqrt{5} \Rightarrow \frac{8(1+\sqrt{5})}{2} = 4(1+\sqrt{5})$$



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

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

$$\frac{4(2-\sqrt{5})}{4-20} = \frac{1-4\sqrt{5}}{10} = \frac{1-4\sqrt{5}}{10} = \frac{2-2\sqrt{5}}{5}$$

$$\sqrt{2a^2+4a} = 2-4a \Rightarrow 2a^2+4a = 4-16a+16a^2 \Rightarrow 14a-12a^2+4=0$$

$$14a-12a^2+4=0 \Rightarrow a^2-14a+21=0 \Rightarrow (a-14)(a-2)$$

$$a = \frac{14}{2} = 7 \text{ و } \frac{2}{2} = 1 \quad \left| \quad 2-2a \right. \begin{matrix} \frac{14}{2} \text{ } \\ \frac{2}{2} \text{ } \end{matrix} \Rightarrow \frac{9}{\frac{2}{2}} = 9$$

$$\frac{\sqrt{x+1}}{\sqrt{x-1}+3} - \frac{\sqrt{x+1}}{3-\sqrt{x-1}} = \frac{x-1}{\sqrt{x-1}} \Rightarrow \frac{(\sqrt{x+1})(3-\sqrt{x-1}) - (\sqrt{x+1})(3+\sqrt{x-1})}{1-x} = \frac{x-1}{\sqrt{x-1}}$$

$$\frac{(\sqrt{x+1})(3-\sqrt{x-1}-3-\sqrt{x-1})}{1-x} = \frac{x-1}{\sqrt{x-1}} \Rightarrow \frac{(\sqrt{x+1})(-2\sqrt{x-1})}{1-x} = \frac{x-1}{\sqrt{x-1}}$$

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

$$\Rightarrow -1 \cdot (2-x) = 2-x^2 \Rightarrow -2+10x = 2-x^2 \Rightarrow x^2+10x-4=0$$

$$x = -12 \rightarrow \text{نه ندارد}$$

$$x \neq -2$$

جمع = ۲ ✓ یک بخش زیاد از حساب ام در اینجا نوشتم ↓ در راه حل باید اول هست

$$\frac{1}{x^2} + \frac{1}{(1-x)^2} = \frac{16}{9} \Rightarrow \frac{1}{x^2} + \frac{1}{1+x^2-2x} = \frac{16}{9} \Rightarrow \frac{1+x^2-2x+x^2}{(x(1-x))^2} = \frac{16}{9}$$

$$\frac{(x^2-2x)+1}{x^2} = \frac{16}{9} \Rightarrow 9-18x=16x^2 \Rightarrow 9-18x=16x^2 \Rightarrow 16x^2+18x-9=0$$

$$x = \frac{1}{4}, \frac{3}{4}, \frac{5+\sqrt{55}}{10}, \frac{5-\sqrt{55}}{10}$$

$$\sqrt{x + \sqrt{-x^3 + 4x^2 + 25x - 100}} + \sqrt{x^2 + \sqrt{-x^3 + 4x^2 - 1}} = x + 2$$

این دو را در هم می‌زنیم

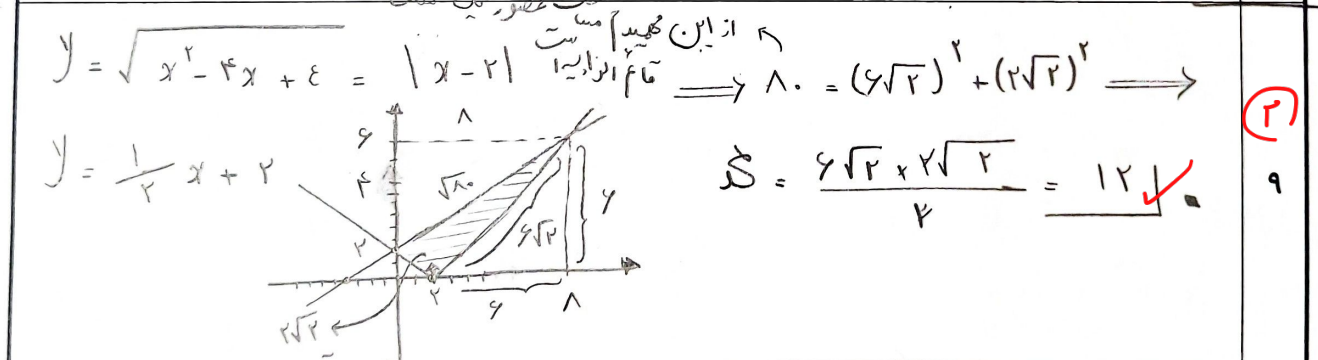
$$-x^2(x-4) + 25(x-4) = \dots$$

$$x \in [4, 5] \cup [-5, -4]$$

$$3y = -x + 17 \Rightarrow y = -\frac{x}{3} + \frac{17}{3}$$

$$y = |x+2| + |x-1| \Rightarrow$$

$$AB = \sqrt{(2+4)^2 + (7-5)^2} = \sqrt{40}$$



$$\frac{1}{y-9} + \frac{1}{y} = \frac{1}{2}$$

$$\frac{y+y-9}{y^2-9y} = \frac{1}{2} \Rightarrow 2y-18=y^2-9y \Rightarrow y^2-11y+18=0 \Rightarrow (y-9)(y-2)$$

y = { 9, 2 } (مورد اول) ⇒ 36 h ✓ (مورد دوم) ⇒ 2

$$\text{قوة} = \sqrt{x^2 + y^2} \rightarrow \frac{\sqrt{x^2 + y^2}}{x} = \frac{\sqrt{5} + 1}{2} \xrightarrow{\text{تقارب}} \frac{x^2 + y^2}{x^2} = \frac{4 + \sqrt{5}}{4}$$

$$\frac{y^2}{x^2} = \frac{1 + \sqrt{5}}{2} \quad \text{منج رواز صغیر} \rightarrow \frac{y^2}{x^2} = \frac{1 + \sqrt{5}}{2} \quad \text{حالت معال: } \frac{x^2}{y^2} = \frac{2}{1 + \sqrt{5}} = \frac{\sqrt{5} - 1}{2}$$