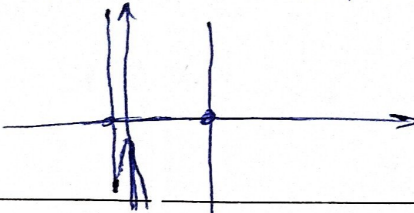


$$\frac{1}{x^2} + \frac{1}{(1-m)^2} = \frac{140}{9} \xrightarrow{\text{مضروب}} \frac{(1-x)^2 + x^2}{x^2(1+x^2-2x)} = \frac{140}{9} \rightarrow 9(x^2 - 2x + 1 + x^2) = 140x^2(1+x^2-2x)$$

$$\Rightarrow 18x^2 - 18x + 9 = 140x^2 - 280x^3 + 140x^2 \Rightarrow 140x^2 - 280x^3 - 18x^2 + 18x - 9 = 0$$

$$\Rightarrow \text{گراف}$$


$$\Rightarrow \begin{cases} 2, 140 \\ -182 \end{cases} \xrightarrow{\text{ع2}} \approx 1, 182$$

$$\sqrt{x + \sqrt{-x^2 + 5x + 20}} + \sqrt{x + \sqrt{-x^2 + 4x - 1}} = x + 2$$

$$\frac{x^2(x-2)}{(20-x^2)(x-2)} = \frac{-x^2(x-2)}{-(x-2)(x+1)} \rightarrow \frac{x^2}{x+1} = \frac{x^2}{x+1}$$

$$(20-x^2)(x-2) = (x-2)(x+1)(x-2)$$

$$\frac{-2 \leq x \leq 2}{+|-|+|-}$$

$$\Rightarrow D_f = 2 \Rightarrow \sqrt{4+5} + \sqrt{14+5} = 2+2 \in \mathbb{R}$$

بجای 2

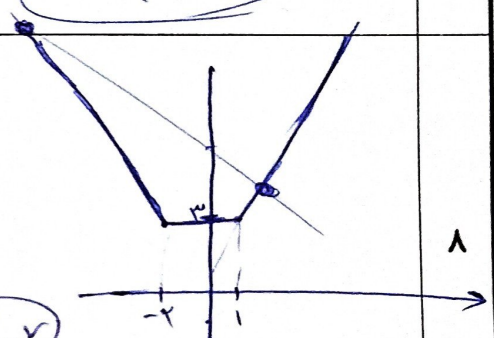
$$y = |x+2| + |x-1|$$

$$y + x = 14 \rightarrow y = -\frac{x}{2} + 14$$

$$AB = ?$$

$$\Rightarrow \begin{cases} -2x-1 = -\frac{x}{2} + 14 \rightarrow \frac{3}{2}x = 15 \rightarrow x = 10 \rightarrow y = 7 \\ 2x+1 = -\frac{x}{2} + 14 \rightarrow \frac{5}{2}x = 13 \rightarrow x = 5.2 \rightarrow y = 8 \end{cases}$$

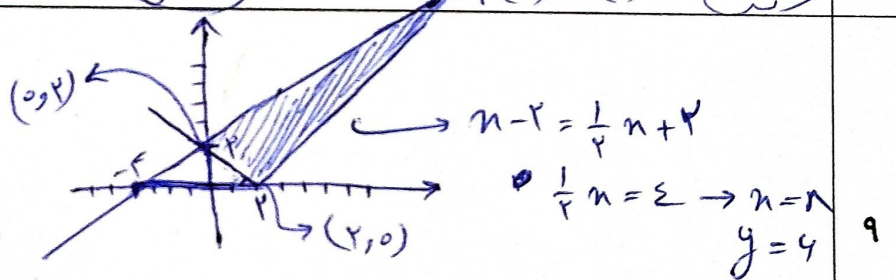
AB = $\sqrt{(4)^2 + (4)^2} = \sqrt{32}$



$$y = \sqrt{x^2 - 5x + 4} = \sqrt{(x-2)^2} = |x-2|$$

$$y = \frac{1}{2}x + 2$$

$$S = ?$$



$$\rightarrow S = \frac{1}{2} \begin{vmatrix} 0 & 2 & 1 \\ 2 & 0 & 4 \\ 1 & 1 & 1 \end{vmatrix} = \frac{1}{2} (0 + 12 + 14 - 0 - 0 - 4) = 12$$

$$\frac{1}{x-9}$$

$$\frac{1}{x}$$

$$\frac{1}{x} + \frac{1}{x-9} = \frac{1}{10} \Rightarrow 10(x-9+x) = x(x+9) \Rightarrow 20x - 90 = x^2 + 9x$$

$$\Rightarrow x^2 - 11x + 90 = (x-5)(x-18) \Rightarrow \begin{cases} x = 5 \\ x = 18 \end{cases}$$

$$\frac{1}{x-9} = ?$$

$$\Rightarrow x-9 = 18-9 = 9$$

پس جواب 9 است.