

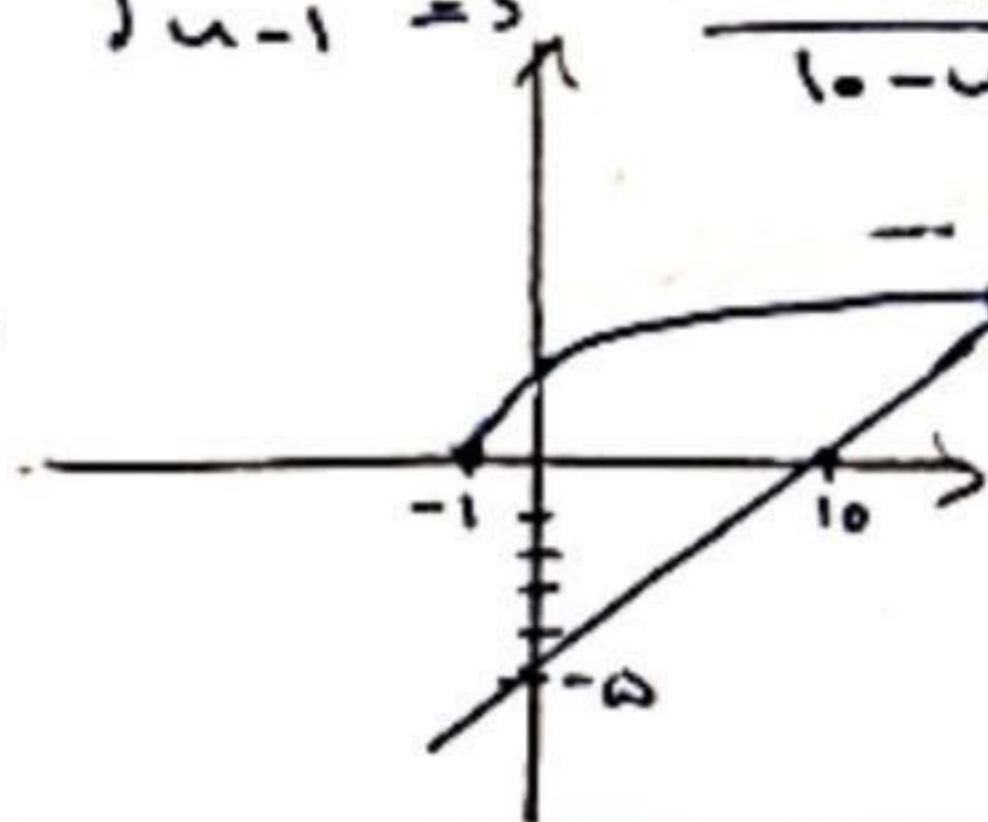
$$\frac{S_r}{S_i} = \frac{\cancel{r} \cancel{a_1} \left(\frac{1+\sqrt{5}}{r} \right)}{\cancel{a_1} \cancel{a_1} \cancel{r}} = \frac{r}{\omega} \left(\frac{1+\sqrt{5}}{r} \right) = \frac{r}{\omega} (1+\sqrt{5})$$

له جواب

$$\Rightarrow \frac{\omega^r}{L^r} = \frac{1 + \omega + r\sqrt{\omega} - r}{r} = \frac{r + r\sqrt{\omega}}{r} \Rightarrow \frac{1 + \sqrt{\omega}}{r} \Rightarrow \frac{L^r}{\omega^r} = \frac{r}{1 + \sqrt{\omega}}$$

$$a = \frac{r}{v} \Rightarrow \frac{a+1}{a} = \frac{\frac{r}{v} + 1}{\frac{r}{v}} = \frac{\frac{r}{v} + \frac{v}{v}}{\frac{r}{v}} = \frac{\frac{r+v}{v}}{\frac{r}{v}} = \frac{r+v}{r} = \left(1 + \frac{v}{r}\right) \rightarrow \dots$$

* $u = 0 \Rightarrow y = 0$
 * $u = 1 \Rightarrow y = 0$



۸. یک دیمه صبت دارد →
که جواب

$$\Rightarrow -10 = K_-(Y-U) \Rightarrow -10 = U+Y \Rightarrow U = -1Y$$

۱۰ این معادله ریشه ندارد = جواب

$$\frac{1}{u^2} + \frac{1}{(1-u)^2} = \frac{140}{9} \Rightarrow u = \frac{1}{4} + t \Rightarrow \frac{1}{(\frac{1}{4}+t)^2} + \frac{1}{(\frac{1}{4}-t)^2} = \frac{140}{9} \Rightarrow \frac{1}{\frac{1}{16} + t^2} + \frac{1}{\frac{1}{16} - t^2} = \frac{140}{9}$$

$$\Rightarrow \frac{1}{\frac{1}{16} + t^2} = \frac{140}{9} \Rightarrow \frac{9}{16} + 9t^2 \Rightarrow \frac{9}{16} + 9t^2 = \frac{140}{9} \Rightarrow 81t^2 + 11 = 140 \Rightarrow \Delta = 1281$$

$$\Rightarrow \sqrt{\Delta} = 35.79 \Rightarrow t = \frac{1}{18} \text{ و } t = \frac{11}{18}$$

$$\Rightarrow t_1 = \frac{1}{18}, t_2 = \frac{11}{18} \Rightarrow u = \frac{1}{4} + t = \frac{1}{4} + \frac{1}{18} = \frac{5}{12} \text{ و } \frac{1}{4} + \frac{11}{18} = \frac{13}{9}$$

$$\Rightarrow \frac{1}{4} + \frac{11}{18} = \frac{13}{9} \Rightarrow \frac{1}{4} + \frac{11}{18} = \frac{13}{9} \Rightarrow \frac{1}{4} + \frac{11}{18} = \frac{13}{9} \Rightarrow \frac{1}{4} + \frac{11}{18} = \frac{13}{9} \Rightarrow \frac{1}{4} + \frac{11}{18} = \frac{13}{9}$$

$$\sqrt{-u^2 + 4u - 1} \Rightarrow u^2 - 4u + 1 \leq 0 \Rightarrow (u-2)(u-1) \leq 0 \Rightarrow [1, 2]$$

$$\sqrt{-u^2 + 4u + 100} \Rightarrow u^2 - 4u - 100 \leq 0 \Rightarrow (u-2)(u+100) \leq 0 \Rightarrow u \in [2, 100]$$

$$\Rightarrow (u-2)(u+100) \leq 0 \Rightarrow (-\infty, -100] \cup [2, \infty)$$

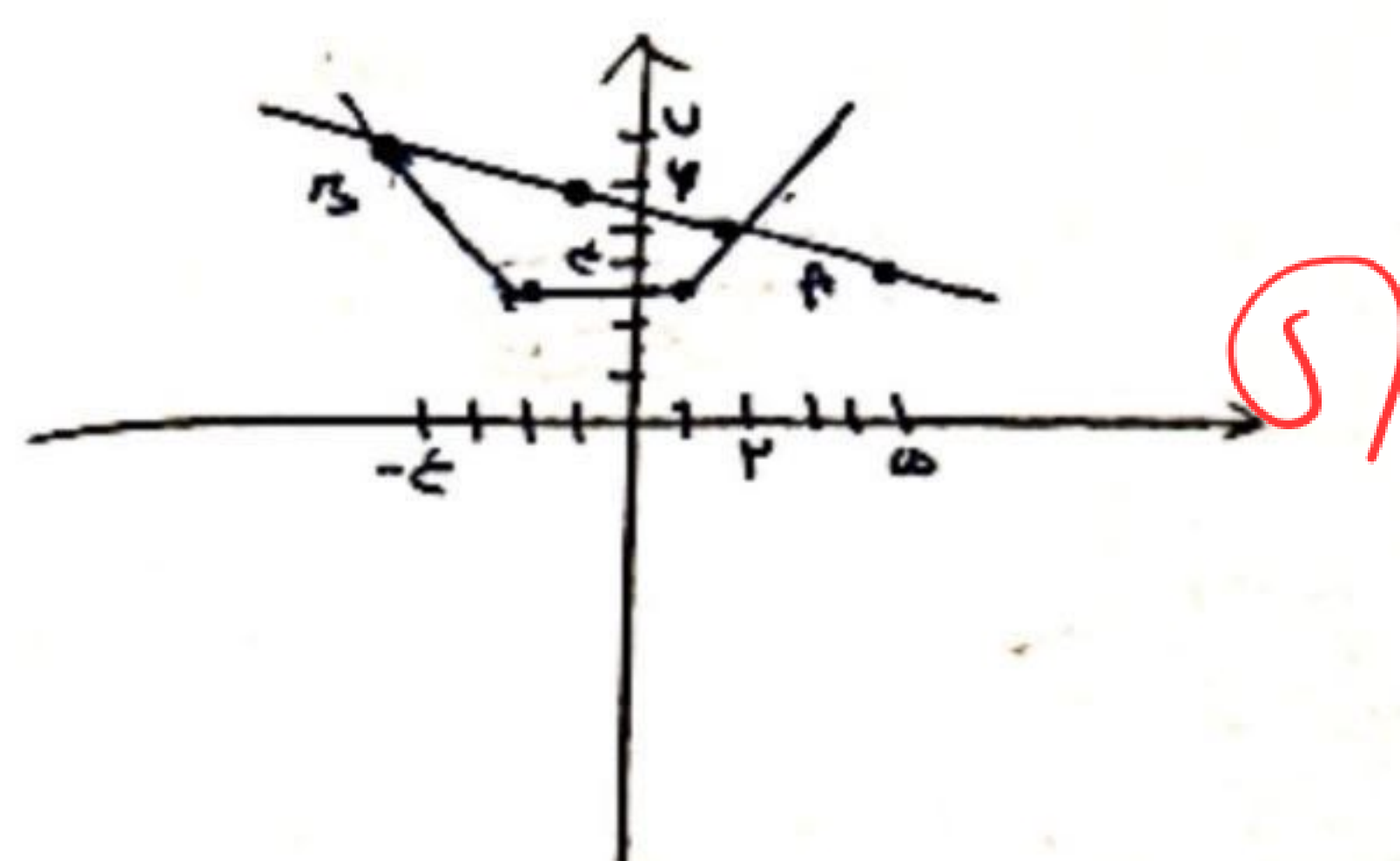
$$\sqrt{16 + \sqrt{-4u + 4u + 100 - 100}} + \sqrt{16 + \sqrt{-4u + 4u - 100}} = 16 + 2 = 18$$

$$y = |u+2| + |u-1| \text{ و } y+u=10$$

$$\begin{array}{c|c|c} -2 & 1 & \\ \hline -u-1 & u & u+1 \end{array}$$

$$\begin{aligned} & \rightarrow y = -u+10 \\ & \Rightarrow u \geq 1 \end{aligned}$$

$$\begin{cases} y+u=10 \\ y-u=-1 \end{cases} \Rightarrow \begin{aligned} & -2u=9 \\ & u=-4.5 \\ & y=5.5 \end{aligned}$$



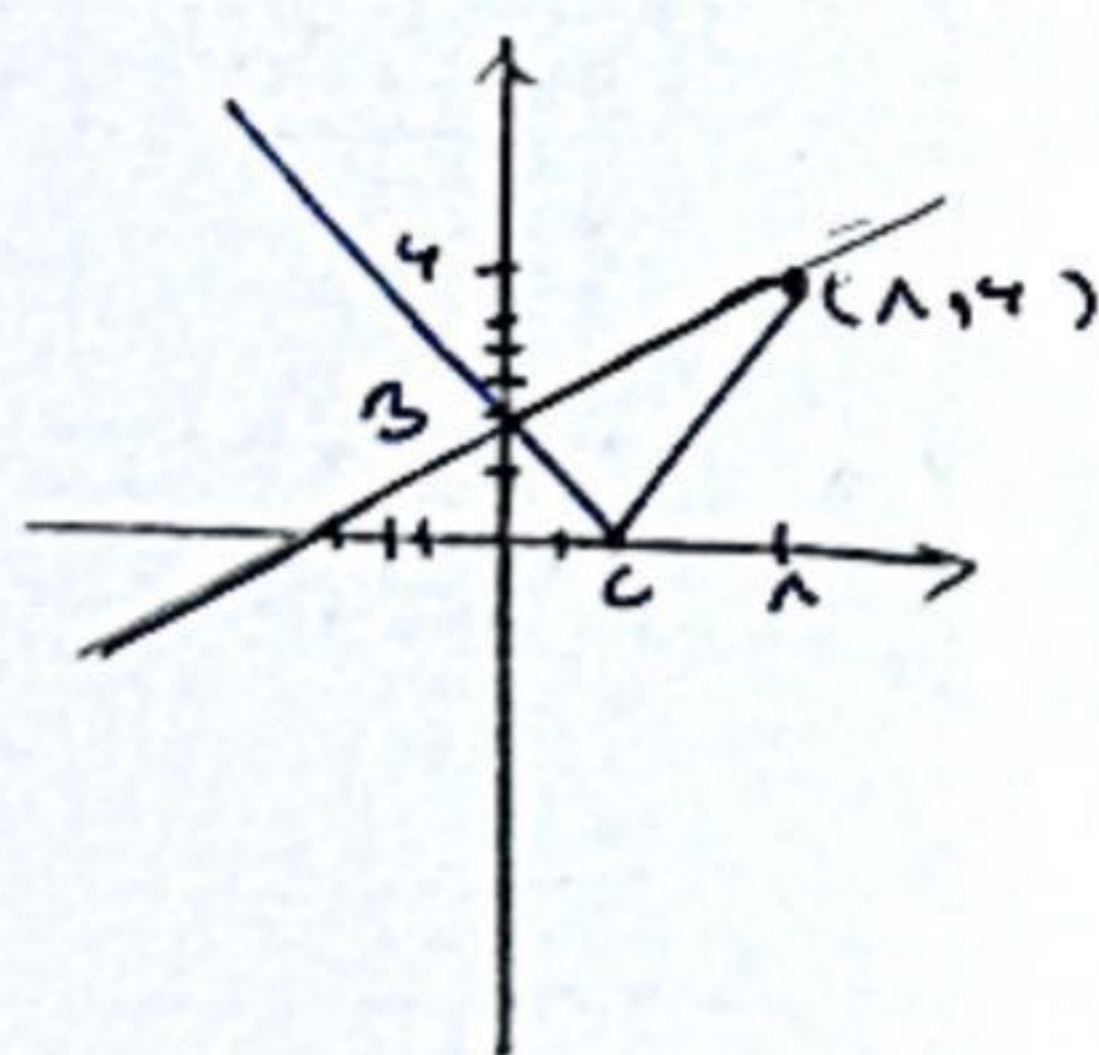
$$AB = \sqrt{\Delta u^2 + \Delta y^2} = \sqrt{4 + 9} = \sqrt{13} = 3.61$$

$$y = \sqrt{u^2 - 4u + 13} \Rightarrow \sqrt{(u-2)^2 + 9} = |u-2| + 3$$

$$\begin{array}{c|c|c} 2 & & \\ \hline -u+2 & u-2 & \end{array}$$

$$\begin{cases} y+u=10 \\ -y+\frac{u}{2}=2 \end{cases} \Rightarrow \begin{aligned} & \frac{3}{2}u=12 \\ & u=8 \\ & y=2 \end{aligned}$$

$$\begin{cases} y-u=-2 \\ -y+\frac{u}{2}=2 \end{cases} \Rightarrow \begin{aligned} & -\frac{1}{2}u=-2 \\ & u=4 \\ & y=6 \end{aligned}$$



$$AB = \sqrt{4 + 9} = \sqrt{13} = 3.61$$

$$S = \frac{1}{2} \times \sqrt{13} \times \sqrt{13} = 6.5$$

$$\text{مطلوب : } u$$

$$\text{مطلوب : } u+9$$

$$\text{مطلوب : } y$$

$$\frac{1}{u} + \frac{1}{u+9} = \frac{1}{y} \Rightarrow \frac{u+9}{u^2+9u} = \frac{1}{y} \Rightarrow 110 + 90u = u^2 + 9u$$

$$\Rightarrow u^2 - 81u - 110 = 0 \Rightarrow u = \frac{-b \pm \sqrt{\Delta}}{2a} \Rightarrow \Delta = 6561 + 440 = 6991$$

$$\Rightarrow \Delta = 6991 \text{ و } \sqrt{\Delta} = 83.6$$

$$u = \frac{-b \pm \sqrt{\Delta}}{2a} \Rightarrow u = \frac{81 \pm 83.6}{2} \Rightarrow u = 82.3 \text{ و } u = -0.3$$

$$\Rightarrow u = 82.3 \rightarrow \text{مطلوب}$$