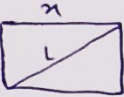


$$\frac{n_1}{y} < \frac{a}{r} \Rightarrow \frac{n_1 r}{y} < \frac{1+\sqrt{5}}{r} \quad \frac{sr}{s_1} < \frac{n_1 y}{n_1 y} = \frac{y(1+\sqrt{5})}{y \frac{a}{r}} = \frac{r+\sqrt{5}a}{a}$$

$r n_1 < a y$ $r n_1 r < y + y \sqrt{5}$
 $y(1+\sqrt{5})$



$$\frac{L}{x} < \frac{1+\sqrt{5}}{r} \Rightarrow L < \frac{1+\sqrt{5}}{r} x \quad n^r + y^r < (1+\sqrt{5})^r \Rightarrow n^r + y^r < \frac{1+\sqrt{5}+\sqrt{5}+1}{r} x^r$$

$$y^r < \frac{r+\sqrt{5}}{r} x^r \Rightarrow \frac{n^r}{y^r} < \frac{r}{r+\sqrt{5}} = \frac{r}{\sqrt{5}+1} = \frac{\sqrt{5}-1}{2}$$

$$\sqrt{ra^r + fa} < r - a \Rightarrow \sqrt{ra^r + fa} < r - a \Rightarrow \sqrt{ra^r + fa} < r - a$$

$$a > r \Rightarrow \sqrt{ra^r + fa} < -r - a \Rightarrow \sqrt{ra^r + fa} < -r - a$$

$$a < r \Rightarrow \frac{a}{r} < \frac{a}{r} \Rightarrow \frac{r}{a} < \frac{r}{a} \Rightarrow \frac{r}{a} < \frac{r}{a} \Rightarrow \frac{r}{a} < \frac{r}{a}$$

$$\sqrt{x+1} \left(\frac{1}{\sqrt{x+1}+r} - \frac{1}{r-\sqrt{x+1}} \right) < \frac{x-1}{x-1} \Rightarrow \sqrt{x+1} \left(\frac{1}{\sqrt{x+1}+r} - \frac{1}{r-\sqrt{x+1}} \right) < 1$$

$$\Rightarrow \frac{1}{\sqrt{x+1}+r} - \frac{1}{r-\sqrt{x+1}} < \frac{1}{\sqrt{x+1}} \Rightarrow \frac{1}{\sqrt{x+1}+r} < \frac{1}{r-\sqrt{x+1}} + \frac{1}{\sqrt{x+1}}$$

$$\Rightarrow \frac{1}{\sqrt{x+1}+r} < \frac{1}{r-\sqrt{x+1}} + \frac{1}{\sqrt{x+1}} \Rightarrow \frac{1}{\sqrt{x+1}+r} < \frac{1}{r-\sqrt{x+1}} + \frac{1}{\sqrt{x+1}}$$

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

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

$$\frac{1}{n^r} + \frac{1}{(1-n)^r} < \frac{1}{a} \Rightarrow \frac{(1-n)^r + n^r}{n^r(1-n)^r} < \frac{1}{a} \Rightarrow \frac{n^r - 2n + 1 + n^r}{(n-n^r)^r} < \frac{1}{a}$$

$$\Rightarrow \frac{2n^r - 2n + 1}{(n-n^r)^r} < \frac{1}{a} \Rightarrow \frac{2n^r - 2n + 1}{(n-n^r)^r} < \frac{1}{a}$$

$$\sqrt{n+\sqrt{-n^r+4n^r+50n-100}} + \sqrt{n^r+\sqrt{-n^r+4n-1}} < n+r$$

$$\Rightarrow \sqrt{n+\sqrt{-n^r+4n^r+50n-100}} + \sqrt{n^r+\sqrt{-n^r+4n-1}} < n+r$$

$$y \leq |x+2| + |x-1| \Rightarrow \begin{cases} x \geq 1 \Rightarrow x+2+x-1 \leq y \Rightarrow 2x+1 \leq y \\ -1 \leq x \leq 1 \Rightarrow x+2-x+1 \leq y \Rightarrow y \leq 3 \\ x \leq -1 \Rightarrow -x-2-x+1 \leq y \Rightarrow -2x-1 \leq y \end{cases}$$

$$y \leq -\frac{1}{2}x + \frac{11}{2}$$

(1)

$$x \geq 1 \Rightarrow x+2+x-1 \leq \frac{1}{2}x + \frac{11}{2} \Rightarrow 2x+1 \leq \frac{1}{2}x + \frac{11}{2} \Rightarrow \frac{3}{2}x \leq 5 \Rightarrow x \leq \frac{10}{3}$$

$$-1 \leq x \leq 1 \Rightarrow x+2-x+1 \leq \frac{1}{2}x + \frac{11}{2} \Rightarrow 3 \leq \frac{1}{2}x + \frac{11}{2} \Rightarrow 6 \leq x + 11 \Rightarrow x \geq -5$$

$$x \leq -1 \Rightarrow -x-2-x+1 \leq \frac{1}{2}x + \frac{11}{2} \Rightarrow -2x-1 \leq \frac{1}{2}x + \frac{11}{2} \Rightarrow -\frac{5}{2}x \leq 12 \Rightarrow x \geq -\frac{24}{5}$$

(2)

$$AB = \sqrt{(y_B - y_A)^2 + (x_B - x_A)^2} = \sqrt{(5-0)^2 + (2-(-1))^2} = \sqrt{25+9} = \sqrt{34}$$

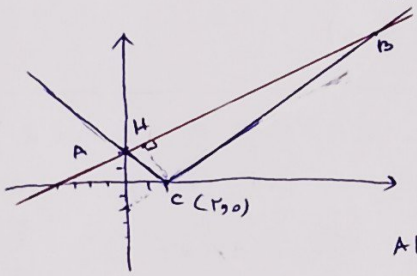
$$y \leq \sqrt{x^2 + x + 2} = \sqrt{(x-\frac{1}{2})^2 + \frac{17}{4}} = |x-\frac{1}{2}| \begin{cases} x \geq \frac{1}{2} \Rightarrow x-\frac{1}{2} \leq \frac{x}{2} \Rightarrow \frac{x}{2} \geq 1 \Rightarrow x \geq 2 \\ x \leq \frac{1}{2} \Rightarrow -x+\frac{1}{2} \leq \frac{x}{2} \Rightarrow -\frac{3}{2}x \leq -\frac{1}{2} \Rightarrow x \leq \frac{1}{3} \end{cases}$$

(9)

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

$$x=0 \Rightarrow y \leq 2$$

$$y=0 \Rightarrow x \leq -4$$



$$\begin{cases} x \geq 2 \Rightarrow x-\frac{1}{2} \leq \frac{1}{2}x + 2 \Rightarrow x-2 \leq x+4 \Rightarrow x \leq 6 \\ x \leq \frac{1}{3} \Rightarrow -x+\frac{1}{2} \leq \frac{1}{2}x + 2 \Rightarrow -\frac{3}{2}x \leq \frac{3}{2} \Rightarrow x \geq -1 \end{cases}$$

B1/2

$$AB \leq y \leq \frac{1}{2}x + 2 \Rightarrow \frac{1}{2}(0) + 2 \leq y \leq 2$$

A1/2

$$h = \frac{\text{طول عمود}}{CH} = \frac{|0 - \frac{1}{2}(\frac{1}{2}) - 2|}{\sqrt{1 + \frac{1}{4}}} = \frac{\frac{9}{4}}{\sqrt{\frac{5}{4}}} = \frac{9}{\sqrt{5}} = \frac{9\sqrt{5}}{5}$$

$$a \leq \frac{dy}{dx} \leq \frac{1}{a} \leq \frac{1}{a}$$

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

$$\Rightarrow S \leq \frac{AB \times h}{2} \leq \frac{\frac{9}{\sqrt{5}} \times \frac{9\sqrt{5}}{5}}{2} = \frac{81}{10}$$

$$AB = \sqrt{(2-0)^2 + (1-(-1))^2} = \sqrt{4+4} = \sqrt{8} = 2\sqrt{2}$$

$$\begin{cases} t_1 \leq t_2 - 9 \Rightarrow t_1 + 9 \leq t_2 \\ t_1 + t_2 \leq 10 \end{cases}$$

$$\Rightarrow \frac{1}{t_1+9} + \frac{1}{t_1} \leq \frac{1}{10} \Rightarrow \frac{t_1 + t_1 + 9}{t_1(t_1+9)} \leq \frac{1}{10} \Rightarrow t_1^2 + 9t_1 + 9 \leq t_1^2 + 10t_1 \Rightarrow 9 \leq t_1$$

(10)

(مجموعه سببی بار را در محاسبه انجام می دهد)

$$t_1^2 - 11t_1 - 10 \leq 0$$

$$(t_1 - 14)(t_1 + 1) \leq 0$$

$$\begin{cases} t_1 \leq -1 \\ t_1 \geq 14 \end{cases}$$

(2)