

نام و نام خانوادگی آریه ای پاسخنامه تشریحی تکلیف شماره ۱۷۰۰ کلاس A

$A(-2, k)$ و $B(4, m)$ سبب: $m = -\frac{1}{p}$

$$-\frac{1}{p} = \frac{m-k}{4} \rightarrow m-k = -\frac{4}{p}$$

$$AB = \sqrt{(4+2)^2 + (m-k)^2} = 3\sqrt{5}$$

$$S = AB \times AB = 3\sqrt{5} \times 3\sqrt{5} = 45 \Rightarrow S = 45$$

$\overrightarrow{AB} = \overrightarrow{CD}$

$\overrightarrow{AB} = B - A = (4, -3) \rightarrow |x+1| = 4 \Rightarrow x = \frac{3}{p} \Rightarrow \overrightarrow{BC} = C - B = (x-3, y-1)$

$\overrightarrow{DC} = C - D = (x+1, -3)$

$\overrightarrow{AB} \times \overrightarrow{BC} = (4, -3) \times (x-3, y-1) = 0 \Rightarrow 4(y-1) - 3(x-3) = 0 \Rightarrow y = -1$

$\tan \theta = m \Rightarrow \frac{p_m}{m^2-1} = \sqrt{3} \Rightarrow \sqrt{3}m^2 + pm - \sqrt{3} = 0 \Rightarrow \frac{\sqrt{3}}{|a|} = \frac{\sqrt{3}}{1}$

$\frac{\sqrt{19}}{\sqrt{3}} = \frac{4}{\sqrt{3}} = \frac{4\sqrt{3}}{3}$

$A(1, 9), B(3, 3), C(7, 11)$

$BC \stackrel{m}{\Rightarrow} \frac{11-3}{7-3} = 2 \Rightarrow y-3 = 2(x-3) \Rightarrow y = 2x-3 \rightarrow 2x-y-3=0$

$AH = \frac{|ax_0 + by_0 + c|}{\sqrt{a^2 + b^2}} \Rightarrow \frac{|2-9-3|}{\sqrt{5}} = \frac{10}{\sqrt{5}} = 2\sqrt{5} \Rightarrow AH = 2\sqrt{5}$

$\begin{cases} y+2x=7 \\ 2y-3x=17 \end{cases} \rightarrow \begin{cases} 2y+4x=14 \\ 2y-3x=17 \end{cases} \Rightarrow A(1, 5) \quad \begin{cases} y+2x=7 \\ 2y-7x=-19 \end{cases} \Rightarrow B(3, 1)$

$\begin{cases} 2y-7x=-19 \\ 2y-3x=17 \end{cases} \rightarrow C(5, 1) \quad m_{AC} = \frac{3}{4} \quad y-5 = \frac{3}{4}(x-1) \rightarrow y = \frac{3}{4}x + \frac{19}{4}$

$\Rightarrow 2x-4y+17=0 \quad PH = \frac{|7-4+17|}{\sqrt{20}} = \frac{20}{\sqrt{20}} = \sqrt{20} \Rightarrow PH = \sqrt{20}$

$$m = \frac{y_0 - y}{x_0 - x} = -\frac{r}{q} \quad y - y_0 = -\frac{r}{q}(x - x_0) \Rightarrow y = -\frac{r}{q}(x + \frac{r}{q})$$

$$y = -\frac{r}{q}x - \frac{1}{4} \quad \text{با } x=y \quad x = -\frac{r}{q}x - \frac{1}{4} \quad \frac{1}{q}x = -\frac{1}{4} \rightarrow x = -\frac{r}{4}, y = -\frac{r}{4}$$

$$\text{مساحت: } \sqrt{(-\frac{r}{4})^2 + (-\frac{r}{4})^2} = \sqrt{\frac{r^2}{8}} = \frac{\sqrt{r^2}}{\sqrt{8}} \rightarrow \text{مساحت} = \frac{r^2}{\sqrt{32}}$$

$$y = ax + 1 \rightarrow m = a \quad a y - x = a - 1 \rightarrow y = \frac{x}{a} + \frac{a-1}{a} \rightarrow m = \frac{1}{a}$$

$$\Rightarrow a = \frac{1}{a} \rightarrow a^2 = 1 \Rightarrow a = \pm 1 \quad \text{حالت 1: } a = 1 \quad y - x = 1, y - x = 0$$

$$\rightarrow \text{مساحت} \quad h = \frac{1}{\sqrt{2}} \quad \text{حالت 2: } y + x = 1, y + x = 2 \quad \text{نقطه میانی هیچ کدام نیست یعنی اینها هم نیست}$$

$$h = \frac{1}{\sqrt{2}} \quad w = \sqrt{2} \quad w^2 + h^2 = a^2 \Rightarrow w^2 = 2a^2 - 1 \rightarrow w = \sqrt{2a^2 - 1} \rightarrow \text{مساحت} \quad S = w \times h = \sqrt{2a^2 - 1} \times \frac{1}{\sqrt{2}} = \frac{\sqrt{2a^2 - 1}}{\sqrt{2}} = \frac{\sqrt{2a^2 - 1}}{2}$$

$$m = \frac{b-a}{c-d} = \sqrt{r} \rightarrow b-a = \sqrt{r} \quad (-\frac{1}{r}) - (-\frac{1}{r})$$

$$d = \sqrt{(\frac{1}{r})^2 + (\frac{1}{r})^2} = \sqrt{\frac{2}{r^2}} = \frac{\sqrt{2}}{r} = \frac{1}{\sqrt{r}} \Rightarrow \text{مساحت} = \frac{1}{r} \times \sqrt{r} = \frac{\sqrt{r}}{r}$$

$$A(t, 0) \quad x - ry = 1 \quad d = \frac{|x_0 - y_0|}{\sqrt{r^2 + 1}} = \frac{r}{\sqrt{10}}$$

بیشترین مساحت در حالی است که مساحت مثلث در هر خط و طول در نقطه برابر همان d باشد

$$S_{\max} = \frac{1}{r} \times d \times d = \frac{1}{r} d^2 = \frac{1}{r} \left(\frac{r}{\sqrt{10}}\right)^2 = \frac{1}{r} \times \frac{r}{10} = \frac{1}{10} \rightarrow S = \frac{1}{10}$$

$$d = r = \sqrt{(-r)^2 + (-r)^2} = \omega \quad m = \frac{-r}{-r} = \frac{r}{r} \rightarrow m_L = \frac{r}{r}$$

$$y + r = -\frac{r}{r}(x + r) \rightarrow y = -\frac{r}{r}x - \frac{r}{r} \quad m_L = \frac{r}{r} \rightarrow y = \frac{r}{r}x + b$$

$$\frac{1}{1+m^2} = \omega \rightarrow 1 + \frac{1}{r^2} = \frac{r}{r} \rightarrow \sqrt{1+m^2} = \frac{r}{r} \quad b = \omega \times d = \frac{r}{r} \quad y = \frac{r}{r}x + \frac{r}{r}$$

$$\frac{r}{r}x - \frac{r}{r} = \frac{r}{r}x + \frac{r}{r} \rightarrow x = -1 \Rightarrow y = -1$$

$$\Rightarrow \sqrt{x^2 + 1} = \sqrt{2}$$