

Date:

Sub:

لغات البرهان - تليق - مادة ١٧ - باز دعم (فئة)

$$A \begin{vmatrix} -r \\ k \end{vmatrix} \quad B \begin{vmatrix} r \\ m \end{vmatrix}$$

$$m = \frac{\Delta y}{\Delta x} = -\frac{1}{r} \Rightarrow \frac{k-m}{-r-r} = -\frac{1}{r} \rightarrow k-m=r$$

$$\text{مساحة} = \sqrt{r^2 + 9} = \sqrt{r^2} = r\sqrt{9}$$

$$\text{مساحة} = r\sqrt{9} \times r\sqrt{9} = 9 \times 9 = \boxed{81}$$



$$AB \parallel CD \Rightarrow m_{AB} = m_{CD} = \frac{r}{-r} = -\frac{r}{r+1} \rightarrow$$

$$AB \perp AC \Rightarrow m_{AB} \times m_{AC} = -1$$

$$-\frac{r}{r} \times \frac{1-y}{m} = -1 \rightarrow \frac{ry-r}{r \times \frac{r}{r}} = 1 \rightarrow ry-r=9 \rightarrow \boxed{y=r}$$

$$\sqrt{\Delta x^2 + \Delta y^2} \Rightarrow \sqrt{9 + 14} = \sqrt{r^2} = 5$$

$$\sqrt{\frac{9}{5} + r} \Rightarrow \sqrt{\frac{r^2}{r}} = \frac{r}{r} = 1, 8 \quad P = (8 + 1, 8) = \boxed{(10)}$$

$$(m^2-1)y = -rmx + r \Rightarrow y = \frac{-rm}{m^2-1}x + \frac{r}{m^2-1}$$

$$\tan 45^\circ = r\sqrt{r} \rightarrow \frac{-rm}{m^2-1} = \sqrt{r} \rightarrow \sqrt{r}m - \sqrt{r} = -rm \rightarrow \sqrt{r}m^2 + rm - \sqrt{r} = 0$$

$$m^2 + rm - r = 0 \rightarrow (m + \frac{r}{\sqrt{r}})(m - \frac{1}{\sqrt{r}}) = 0 \Rightarrow m_1 = \frac{r}{\sqrt{r}} = -\sqrt{r}$$

$$m_2 - m_1 = \frac{\sqrt{r}}{r} - (-\sqrt{r}) = \frac{\sqrt{r}}{r} + \sqrt{r} = \boxed{\frac{r\sqrt{r}}{r}}$$

AH (أح) $\Rightarrow$ BC (بج) ; A (أح) و B (بج)

$$BC \text{ (بج)} \Rightarrow m_{BC} = \frac{11-r}{\sqrt{r}} = r$$

$$y-r = r(x-r) \rightarrow y-r = rx-r$$

$$y = rx - r \rightarrow y - rx + r = 0$$

$$AH = \frac{|ax+by+c|}{\sqrt{a^2+b^2}} \Rightarrow \frac{|9-r+r|}{\sqrt{1+r}} = \frac{1}{\sqrt{9}} \times \frac{\sqrt{9}}{\sqrt{9}} = \frac{1 \cdot \sqrt{9}}{9} = \boxed{\frac{r\sqrt{9}}{9}}$$

Date:

Sub:

$$B \text{ lies on } AC \Rightarrow 17y - 17x - 17 = 0$$

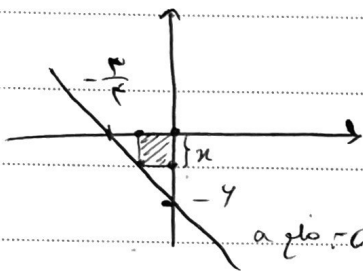
AC bisects

$$\begin{cases} BC = y + 17x - 17 = 0 \quad x^2 \\ AB = 17y - 17x + 17 = 0 \quad \rightarrow 17y - 17x - 12 = 0 \end{cases}$$

$$11x - 17y = 0$$

$$\begin{aligned} x &= 1 \\ y &= 1 \end{aligned}$$

$$BH = \frac{|ax + by + c|}{\sqrt{a^2 + b^2}} = \frac{|17 - 17 - 17|}{\sqrt{17^2 + 17}} = \frac{17}{8} = \boxed{\frac{17}{8}}$$



$$\frac{x}{\frac{17}{8}} = \frac{y - x}{y} \Rightarrow 4x = \frac{9}{17} - \frac{1}{17}x \Rightarrow \frac{17}{8}x = \frac{9}{17}$$

$$x = \frac{9}{17} \cdot \frac{8}{17} = \frac{72}{289}$$

$$a \text{ is the distance from the origin to the line} \Rightarrow \boxed{a} \rightarrow \text{distance} = a\sqrt{2}$$

$$\text{distance} = a\sqrt{2} \Rightarrow \boxed{\frac{17}{8}\sqrt{2}}$$

$$y = ax + 1$$

$$ay = x + a - 1 \Rightarrow y = \frac{1}{a}x + \frac{a-1}{a} \quad \text{Line is perpendicular to } y = \frac{1}{a}x + \frac{a-1}{a} \quad \checkmark$$

$$\text{Line is perpendicular to } y = \frac{1}{a}x + \frac{a-1}{a} \Rightarrow a = \frac{1}{a} \Rightarrow a^2 - 1 = 0 \Rightarrow a = \pm 1$$

$$y = x + 1 \quad , \quad y = x \quad (1, 2) \rightarrow 2 = 1 + 1 \quad \checkmark$$

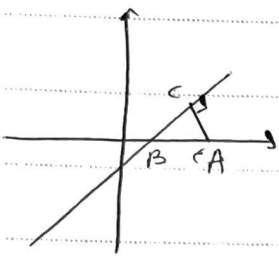
$$y = -x + 1 \quad y = -x + 1 \quad (1, 2) \rightarrow 2 = -1 + 1 \quad , \quad 2 = -1 + 1 \quad \checkmark$$

$$\begin{aligned} y = x - 1 = 0 \quad \rightarrow \quad \frac{|c - c'|}{\sqrt{a'^2 + b'^2}} &= \frac{|1 - (-1)|}{\sqrt{1^2 + 1^2}} = \frac{1}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{2} \xrightarrow{\text{Simplify}} \sqrt{2^2 - 1^2} = \frac{\sqrt{2}}{2} \\ y = x = 0 \end{aligned}$$

$$S = \frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{2} = \boxed{\frac{1}{2}}$$

Date:

Sub:



$$y = \frac{1}{r}x - \frac{1}{r} \quad m_{AC} = -r \rightarrow y = -r(x-1) \quad \text{--- A}$$

$$y = -rx + 1r$$

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

$$y = 0.19$$

B!

درین حالت $C = B = (\frac{1}{r}, \frac{1}{r})$

$$AC = \sqrt{(0, 1)^2 + (0, 1)^2} = 0.1414$$

$$BC = \sqrt{(1, 0)^2 + (0, 1)^2} = 0.1414$$

$$S = \frac{AB \times BC}{r} \Rightarrow \frac{0.1414 \times 0.1414}{r} = \boxed{1, 10}$$

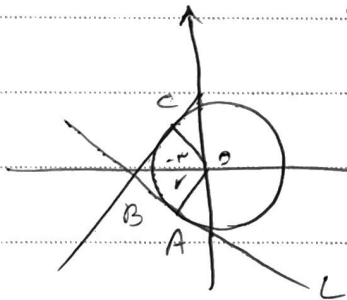
$$m = \sqrt{r} \rightarrow \frac{b-a}{-\frac{1}{r} + \frac{1}{r}} \rightarrow \frac{b-a}{\frac{1}{r}} = \sqrt{r} \rightarrow b-a = \frac{\sqrt{r}}{r}$$

$$\sqrt{\left(\frac{\sqrt{r}}{r}\right)^2 + \frac{1}{r^2}} = \sqrt{\frac{r}{r^2} + \frac{1}{r^2}} = \frac{r}{r} = \frac{1}{r}$$

$$\frac{a}{r} = \frac{1}{r} \rightarrow \boxed{\frac{a}{r} = \frac{1}{r}}$$

فقط دو نقطه
برای حل داریم

$$\Rightarrow \sqrt{(0+1)^2 + (0+1)^2} = r = 2$$



$$m_{AB} = \frac{r}{r} \rightarrow m_{BC} = \frac{r}{r} \rightarrow BC = y = \frac{r}{r}x + b$$

$$m = \frac{r}{r} \rightarrow ry - rx - rb = 0$$

$$\text{فاصله } BC \text{ از } O \text{ است} \Rightarrow \frac{|ry - rx - rb|}{\sqrt{r^2 + r^2}} = r \Rightarrow -rb = ra$$

$$b = \frac{ra}{r} \sqrt{2}, \quad -\frac{ra}{r} \sqrt{2}$$

$$BC \rightarrow y = \frac{r}{r}x + \frac{ra}{r} \rightarrow BC = -rx + ry - ra = 0$$

$$m_{AB} = -\frac{r}{r} \rightarrow y + r = -\frac{r}{r}(x + r) \Rightarrow y = -\frac{r}{r}x - \frac{ra}{r} \rightarrow AB = rx + ry + ra = 0$$

$$x = \frac{-ra - 1}{-1 - 1} = -1 \quad y = \frac{1 - ra}{-1 - 1} = -1 \quad xy = -1 \times -1 = 1$$

(✓)