

$$A(-r, k)$$

$$B(t, m)$$

$$M = -\frac{1}{F}$$

$$\text{شیب خط} = \frac{m - k}{f - (-2)} = -\frac{1}{5} \rightarrow m - k = -3$$

$$\rightarrow S(A \cup B)^r \rightarrow (f - (-f))^r + (m - n)^r = 34 + 9 = \boxed{43}$$

1

$A(-1, 4)$

$$B(3, 1)$$

$$C(x, y) \rightarrow AB = B - A = (3 - (-1), 1 - 4) = (4, -3)$$

$D(-1-x, y+3) = (x-3, y-1) \xrightarrow{\text{اعمال مجاوره}} (4, -3) \cdot (x-3, y-1) = 0 \rightarrow 4(x-3) - 3(y-1) = 0$

$$\begin{aligned} A+C &= B+D \rightarrow (-1, 4) + (x, y) = (3, 1) + (-1-x, y+3) \rightarrow -1+x = 3-x \rightarrow 2x = 4 \rightarrow x = \frac{4}{2} = 2 \\ &\rightarrow C = \left(\frac{4}{2}, -1\right) \rightarrow |AB| = \sqrt{(-1-3)^2 + (4-1)^2} = \sqrt{20} = 2\sqrt{5} \rightarrow BC = C-B = \left(-\frac{4}{2}, -2\right) \rightarrow |BC| = \sqrt{\left(-\frac{4}{2}\right)^2 + (-2)^2} = \sqrt{\frac{16}{4} + 4} = \sqrt{\frac{20}{4}} = \frac{\sqrt{20}}{2} = \frac{2\sqrt{5}}{2} = \sqrt{5} \end{aligned}$$

$$r_m x + (m^r - 1)y = r \rightarrow m = - \frac{r_m}{m^r - 1}$$

$$m = \tan \theta = \sqrt{r} \Rightarrow \frac{r_m}{m^2 - 1} = \sqrt{r} \Rightarrow \sqrt{r} m^2 + r_m - \sqrt{r} = 0$$

3

$$\Delta = r_1 r_2 = 14 > 0 \rightarrow m \rightarrow \frac{-r_1 + r_2}{\sqrt{r_1 r_2}} = \frac{r_2}{\sqrt{r_1 r_2}}$$

$$L: |x - \beta| = \frac{\sqrt{\Delta}}{|a|} = \frac{\sqrt{r_1 + r_2} \cdot \sqrt{r_2}}{\sqrt{r_1}} \rightarrow \frac{-1 - r_1}{\sqrt{r_1 r_2}} = \frac{-\Delta}{\sqrt{r_1 r_2}} \rightarrow \left| \frac{r_2}{\sqrt{r_1 r_2}} - \frac{-\Delta}{\sqrt{r_1 r_2}} \right| = \left| \frac{\Delta}{\sqrt{r_1 r_2}} \right| = \frac{r_2}{\sqrt{r_1}}$$

$$= \left(\frac{r_2}{\sqrt{r_1}} \right) \cdot \frac{\sqrt{r_1}}{\sqrt{r_1}} = \left(\frac{\sqrt{r_1 r_2}}{\sqrt{r_1}} \right)$$

$A(1,9)$

$B(3, 3)$

$C(v, u)$

$$\rightarrow M_{BC} = \frac{11 - r}{v - r} = r$$

$$BC = y - r = r(x - r) \rightarrow rx - y - r^2 = 0$$

$A(1,9) \rightarrow AH = \frac{|2(1) - 9 - 3|}{\sqrt{2^2 + (-1)^2}} = \frac{10}{\sqrt{5} \times \sqrt{5}} = \frac{10}{5} = 2$

۲

$$AB: y + rx = V$$

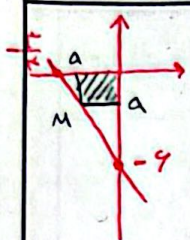
$$AC: f_y - f_x = 1V$$

$$BC: ry - vx = -19$$

$$\Rightarrow B = \begin{cases} AB: (y + 2x = 1) \times 2 \\ BC: 4y - 2x = -14 \end{cases} \rightarrow \begin{cases} -11x \leq -24 \\ x = 2 \\ y = 1 \end{cases}$$

$$BH = AC \Rightarrow \frac{|15-9-14|}{\sqrt{14+9}} = \frac{22}{5} = 4.4$$

△



$$\frac{x}{\frac{r}{\sqrt{2}}} + \frac{y}{-\frac{r}{\sqrt{2}}} = 1 \rightarrow \frac{y}{-\frac{r}{\sqrt{2}}} = \frac{-rx}{r} - 1 \rightarrow y = -rx - r$$

$$ay = -1a - r \rightarrow 9a = -r \rightarrow a = -\frac{r}{9} = \left(-\frac{r}{9}\right)$$

$$d = \frac{r}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \left(\frac{r}{\sqrt{2}}\right)$$

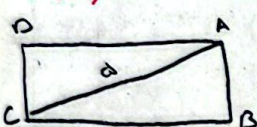
6

$$y - ax = 1$$

$$ay - x = a - 1$$

$$d = a$$

$$(1, 2)$$



$$\begin{cases} y - ax = 1 \rightarrow m = -\frac{a}{1} = \left(-\frac{a}{1}\right) \\ ay - x = a - 1 \rightarrow m' = -\frac{1}{a} = \left(-\frac{1}{a}\right) \end{cases} \rightarrow a = \frac{1}{a} = a^2 = 1 \rightarrow a = \pm 1$$

$$\text{IF } a = 1 \rightarrow \begin{cases} y - x = 1 \\ y - x = 0 \end{cases} \Rightarrow \begin{cases} x - y + 1 = 0 \\ x - y = 0 \end{cases} \Rightarrow d = \frac{|1 - 0|}{\sqrt{2}} = \left(\frac{1}{\sqrt{2}}\right)$$

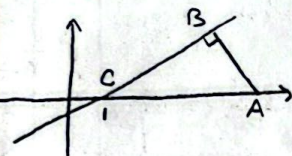
$$\text{IF } a = -1 \rightarrow \begin{cases} y + x = 1 \\ y - x = -1 \end{cases} \Rightarrow \begin{cases} x^2 + \frac{1}{r} = d^2 \rightarrow x^2 + \frac{1}{r} = r^2 a \rightarrow x^2 = r^2 a - \frac{1}{r} \\ \Rightarrow x^2 = \frac{r^2 a - 1}{r} \rightarrow x = \frac{\sqrt{r^2 a - 1}}{\sqrt{r}} \rightarrow S = \frac{r}{\sqrt{r}} \times \frac{1}{\sqrt{r}} = \left(\frac{r}{r}\right) = (1, r^2 a)$$

7

$$A(r, 0)$$

$$x - ry = 1$$

$$\left(\frac{r}{r}, \frac{1}{r}\right)$$



$$AB = \frac{|r - 0 - 1|}{\sqrt{1 + r^2}} = \frac{r}{\sqrt{1 + r^2}}$$

$$\tan C = m_{BC} = \frac{1}{r}$$

$$\tan C = \frac{AB}{BC} = \frac{1}{r} \rightarrow BC = \frac{r}{\sqrt{1 + r^2}} \rightarrow S_{ABC} = \frac{1}{2} \times \frac{r}{\sqrt{1 + r^2}} \times \frac{r}{\sqrt{1 + r^2}} = \frac{r^2}{2(1 + r^2)}$$

$$\Rightarrow (1, r^2 a)$$

8

$$\left(-\frac{1}{r}, a\right) > \left(-\frac{1}{r}, b\right)$$

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

$$|AB| = \sqrt{(a - b)^2 + \left(-\frac{1}{r} + \frac{1}{r}\right)^2} = \sqrt{\left(\frac{\sqrt{r}}{r}\right)^2 + \left(-\frac{1}{r}\right)^2} = \sqrt{\frac{r}{r^2} + \frac{1}{r^2}} = \frac{r}{r} = \left(\frac{1}{r}\right)$$

$$\text{قطر مربع} = \sqrt{2} |AB| = \sqrt{2} \times \frac{1}{r} = \left(\frac{\sqrt{2}}{r}\right)$$

9

$$(-r, -r) \rightarrow r = \sqrt{(-r)^2 + (-r)^2} = \sqrt{2a} = a \rightarrow x^2 + y^2 = 2a \rightarrow -Vx - 1 = (V)$$

$$m = \frac{-r}{-r} = \left(\frac{r}{r}\right) \rightarrow m_L = -\frac{r}{r} \rightarrow y + r = -\frac{r}{r}(x + r) \rightarrow y = -\frac{r}{r}x - \frac{r}{r} - r = -\frac{r}{r}x - \frac{r}{r} - r$$

$$\Rightarrow -\frac{r}{r}x - \frac{r}{r} \rightarrow y = \frac{r}{r}x + b \rightarrow \frac{|b|}{\sqrt{1 + m^2}} = a \rightarrow 1 + m^2 = 1 + \frac{r^2}{r^2} = \frac{r^2}{r^2} \rightarrow \sqrt{\frac{r^2}{r^2}} = \left(\frac{r}{r}\right)$$

$$\frac{|b|}{\frac{a}{r}} = a \rightarrow |b| = \frac{ra}{r} \rightarrow y = \frac{r}{r}x + \frac{ra}{r} \rightarrow \begin{cases} y = -\frac{r}{r}x - \frac{ra}{r} \rightarrow 12\left(-\frac{r}{r}x - \frac{ra}{r}\right) = 12\left(\frac{r}{r}x + \frac{ra}{r}\right) \\ y = \frac{r}{r}x + \frac{ra}{r} \rightarrow 3x - 12a = 12x + 12a \rightarrow x = \frac{12a}{-9} = -\frac{4a}{3} \end{cases}$$

$$\rightarrow y = \frac{r}{r}(-V) + \frac{ra}{r} = \frac{-rV + ra}{r} = \frac{-r(V - a)}{r} = \left(-\frac{r}{r}\right) = (-V)$$