

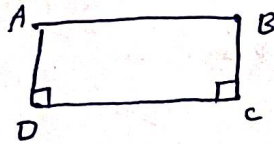
نام و نام خانوادگی نام پاسخنامه تشریحی تکلیف شماره ۱۱۱ کلاس بازدهی A

$$-\frac{1}{\sqrt{3}}(\varepsilon) + b = m \rightarrow m = -\sqrt{3} + b$$

$$-\frac{1}{\sqrt{3}}(-2) + b = k \rightarrow k = 1 + b$$

$$\text{فاصله دو نقطه (طول ضلع)} = \sqrt{(\varepsilon+2)^2 + (k-m)^2} = \sqrt{36+9} = 3\sqrt{3} \rightarrow \text{مساحت} = (3\sqrt{3})^2 = \boxed{27}$$

$$m_{AB} = -\frac{\sqrt{3}}{\varepsilon} \xrightarrow{CD \parallel AB} m_{CD} = -\frac{\sqrt{3}}{\varepsilon} \quad , \quad m_{CD} = \frac{\sqrt{3}}{-1-\sqrt{3}\varepsilon} = -\frac{\sqrt{3}}{\varepsilon} \rightarrow \boxed{\varepsilon = \frac{\sqrt{3}}{2}}$$



$$m_{BC} \times m_{CD} = -1 \Rightarrow \frac{-2(\varepsilon-1)}{\sqrt{3}} \times \left(-\frac{\sqrt{3}}{\varepsilon}\right) = -1 \Rightarrow -2(\varepsilon-1) = \varepsilon \Rightarrow \boxed{\varepsilon = -1}$$

$$\sqrt{2\left(\omega + \frac{\omega}{\sqrt{3}}\right)^2} = \boxed{10} = \text{طول ضلع } BC$$

$$\sqrt{\varepsilon^2 + (-\sqrt{3})^2} = \boxed{5} = \text{طول ضلع } AC$$

$$y = \frac{-\sqrt{3}m}{m^2-1}x + \frac{\sqrt{3}}{m^2-1}$$

$$\tan 45^\circ = \frac{-\sqrt{3}m}{m^2-1} \Rightarrow \sqrt{3}m^2 + 2m - \sqrt{3} = 0 \rightarrow \Delta = 14$$

$$\begin{cases} m_1 = \frac{2}{\sqrt{3}} \\ m_2 = \frac{-4}{\sqrt{3}} \end{cases} \Rightarrow \begin{cases} |m_1 - m_2| = \frac{6}{\sqrt{3}} = \boxed{2\sqrt{3}} \end{cases}$$

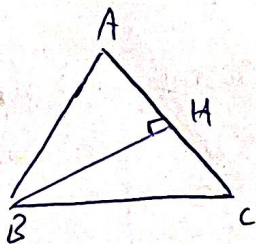
① مساحت مثلث را با درستیان حساب می‌کنیم

$$\frac{1}{2} \begin{vmatrix} 1 & 9 & 1 \\ \sqrt{3} & 3 & 1 \\ \sqrt{3} & 11 & 1 \end{vmatrix} = \frac{3 + 9\sqrt{3} + 3\sqrt{3} - 11 - 11 - 2\sqrt{3}}{2} = \boxed{20}$$

② حالا فاصله BC (فاصله ای که ارتفاع AH بر آن وارد شده)

$$\sqrt{1^2 + \varepsilon^2} = \varepsilon\sqrt{3}$$

$$\text{مساحت} = 20 = AH \times \varepsilon\sqrt{3} \times \frac{1}{2} \Rightarrow AH = \frac{40}{\varepsilon\sqrt{3}} = \boxed{2\sqrt{3}} = AH$$



$$\begin{cases} AC \rightarrow \varepsilon y = \sqrt{3}x + 1\sqrt{3} \\ AB \rightarrow y = -\sqrt{3}x + \sqrt{3} \\ BC \rightarrow 2y = \sqrt{3}x - 1\sqrt{3} \end{cases} \Rightarrow \begin{cases} 2y + \varepsilon x = 1\sqrt{3} \\ 2y - \sqrt{3}x = -1\sqrt{3} \end{cases} \xrightarrow{\text{تفاضل}} \begin{cases} \varepsilon x + \sqrt{3}x = 2\sqrt{3} \\ \varepsilon = \frac{2}{1} \end{cases}$$

$$AC \perp BH \text{ فاصله } BH = \frac{|1\sqrt{3} - 9 - 1\sqrt{3}|}{\sqrt{3}} = \frac{22}{\sqrt{3}} = \boxed{\frac{22}{\sqrt{3}}}$$

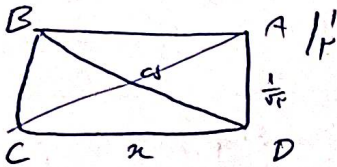
معادله خط را پیدا می کنیم

$$\begin{cases} y = -1x - 6 \\ x = y \end{cases} \Rightarrow x = -1x - 6 \Rightarrow 2x = -6 \Rightarrow x = -3, y = -3$$

نقطه ضلع مربع روی خط $y = -x$

$$\sqrt{\frac{2}{3}} = \sqrt{2} \cdot \frac{1}{\sqrt{3}} = \sqrt{2} \cdot \frac{1}{\sqrt{3}} = \sqrt{\frac{2}{3}}$$

$$\left(\frac{\sqrt{2}}{3} \right) \star$$



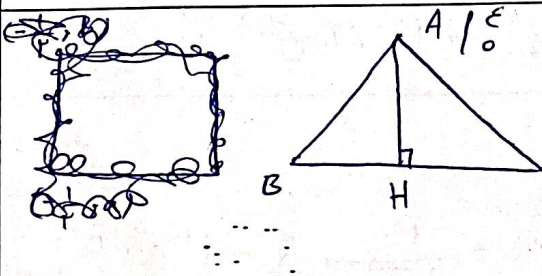
$$ay - x = a - 1, y - ax = 1$$

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

$$a = \frac{1}{a} \Rightarrow a^2 = 1 \Rightarrow a = 1 \text{ or } a = -1$$

$$\Rightarrow y = x + 0 \Rightarrow y = x$$

$$\rightarrow \text{کتابخانه} = \frac{1}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \boxed{1, 1} \star$$



$$AH = \frac{|1 \cdot 0 - 0 \cdot 1|}{\sqrt{1^2 + 0^2}} = \frac{1}{1} = 1$$

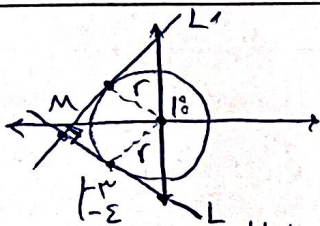
$$S = \frac{1}{2} \times \frac{1}{1} \times \frac{1}{1} = \frac{1}{2}$$

* مانع مانع

$$\begin{cases} -\frac{1}{3}m + c = b \\ -\frac{1}{3}m + c = a \end{cases} \Rightarrow b - a = \frac{\sqrt{3}}{3}$$

$$\text{طول قطر} = \sqrt{\left(-\frac{1}{3} + \frac{1}{3}\right)^2 + \left(\frac{\sqrt{3}}{3}\right)^2} = \sqrt{\frac{1}{3}} = \frac{1}{\sqrt{3}}$$

$$\sqrt{\frac{2}{3}} = \sqrt{2} \cdot \frac{1}{\sqrt{3}} = \sqrt{\frac{2}{3}}$$



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

$$L = \frac{1}{\sqrt{2}}x + \frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}}(x+1)$$

$$\frac{|b|}{\sqrt{\left(\frac{1}{\sqrt{2}}\right)^2 + 1^2}} = \frac{1}{\sqrt{2}} \Rightarrow b = \frac{1}{\sqrt{2}} \Rightarrow b = \frac{\sqrt{2}}{2}$$

$$\Rightarrow \frac{1}{\sqrt{2}}x + \frac{\sqrt{2}}{2} = -\frac{1}{\sqrt{2}}x - \frac{1}{\sqrt{2}} \Rightarrow \frac{2}{\sqrt{2}}x = -\frac{3}{\sqrt{2}} \Rightarrow x = -\frac{3}{2}$$

$$\Rightarrow y = -1$$

$$M(-1, -1)$$