سارینا اسپنانی _ یازدهم دختر _ شماره تکالیف (17)

(1)

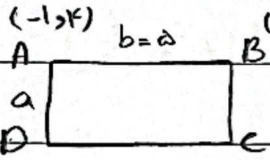
$A(-2,k) \qquad B(4,m)$

$\frac{m-k}{4-(-2)} = \frac{m-k}{6} = -\frac{1}{2} \longrightarrow m-k = -3$ فاصله دو نقطه = اندازه ضلع

$\sqrt{(4-(-2))^2+(m-k)^2} = \sqrt{36+9} = \sqrt{45} \qquad \boxed{S=45}$

(2)

$A(-1,4) \quad B(3,1) \quad C(x,y) \quad D(-1-x,\ y+3)$



$m_{AB} = \frac{4-1}{-1-3} = \frac{3}{-4} \longrightarrow m_{BC} = \frac{4}{3}$

$x_A + x_C = x_B + x_D$

$-1 + x = 3 - 1 - x$

$2x = 3 \longrightarrow x = \frac{3}{2}$

$b = \sqrt{(3-(-1))^2+(1-4)^2} = 5 \qquad \frac{4}{3}(3) + h = 1$

$a = \sqrt{(\frac{3}{2}-3)^2+(-1-1)^2} = \frac{5}{2} \qquad \frac{4}{3}(\frac{3}{2}) - 3 = -1 \qquad h = -3$

$(\frac{3}{2}, -1)$

$P = 2(5+\frac{5}{2}) = 15$

(3)

$\theta = 60^\circ \qquad 2mx + (m^2-1)y = 3$

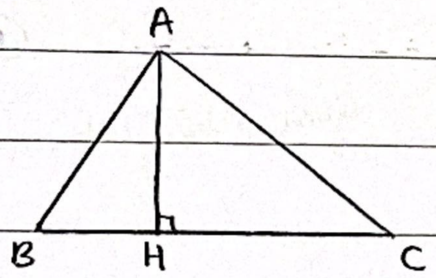
$\tan\theta = \sqrt{3} \longrightarrow a = \sqrt{3} \longrightarrow \frac{2m}{1-m^2} = \sqrt{3}$

$\sqrt{3} - \sqrt{3}m^2 = 2m$

$\sqrt{3}m^2 + 2m - \sqrt{3} = 0 \longrightarrow |\alpha-\beta| = \frac{\sqrt{\Delta}}{|a|} = \frac{\sqrt{4-4\sqrt{3}(-\sqrt{3})}}{\sqrt{3}} = \frac{4}{\sqrt{3}}$

(ک)

$A(۱,۹) \quad B(۳,۳) \quad C(۷,۱۱)$



$$\overline{AH} = \frac{|y-۲x+۳|}{\sqrt{۱^۲+۲^۲}} = \frac{۱۰}{\sqrt{۵}} \times \frac{\sqrt{۵}}{\sqrt{۵}} = ۲\sqrt{۵}$$

$$m_{BC} = \frac{۱۱-۳}{۷-۳} = \frac{۸}{۴} = ۲$$

AH → فاصله A تا BC

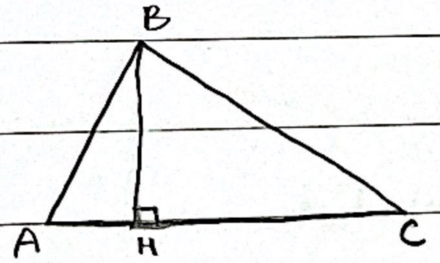
$$۲(۳)+h=۳ \rightarrow h=-۳ \rightarrow y=۲x-۳$$

(ل)

$$AB = y+۲x=۷ \longrightarrow y=-۲x+۷$$

$$AC = ۴y-۳x=۱۷$$

$$BC = ۲y-۷x=-۱۹ \longrightarrow y=\frac{۷}{۲}x-\frac{۱۹}{۲}$$



$$-۲x+۷ = \frac{۷}{۲}x - \frac{۱۹}{۲}$$

$$۷+\frac{۱۹}{۲} = \frac{۷}{۲}x+۲x$$

$$\frac{۳۳}{۲} = \frac{۱۱}{۲}x \longrightarrow x=۳ \qquad B(۳,۱)$$

$$BH = \frac{|۴y-۳x-۱۷|}{۵} = \frac{۲۲}{۵}$$

(م)

$$(۰,-۶) \quad \left(-\frac{۳}{۴}, ۰\right) \qquad m = \frac{۰-(-۶)}{-\frac{۳}{۴}} = \frac{۶}{-\frac{۳}{۴}} = \frac{-۲۴}{۳} = -۸$$

$$y=-۸x-۶ \longrightarrow \alpha=-۸\alpha-۶$$

$$۹\alpha=-۶ \longrightarrow \alpha=\frac{-۶}{۹}=\frac{-۲}{۳}$$

$$\boxed{\text{فاصله} = \frac{۲\sqrt{۲}}{۳}}$$

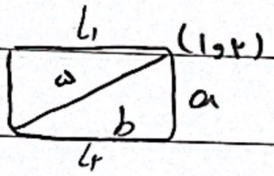
۷) متقابل هم هستند ← یعنی شیب‌ها برابرند

$ay - x = a - 1$ $\qquad y - ax = 1$

$a = \frac{1}{a} \to a = \pm 1$ $\qquad S = ?$ $\qquad \underset{L_1}{(1,2)}$ $\qquad$ قطر $= 5$

$a = 1 \to y = x + 1$ $\qquad y = x$ ✓ $\to (1,2)$ راس صدق می‌کند

$a = -1 \to y = -x + 1$ $\qquad y = -x - 2$ ⊗



$a = \frac{|1-2|}{\sqrt{2}} = \frac{1}{\sqrt{2}}$

$b = \frac{3}{\sqrt{2}} \longrightarrow S = \frac{1}{\sqrt{2}} \times \frac{7}{\sqrt{2}} = \frac{7}{2} = 3.5$

$(\frac{1}{\sqrt{2}})^2 + b^2 = 5 \longrightarrow b = \frac{7}{\sqrt{2}}$

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۸)

$A(4,0)$ $\qquad x - 3y = 1$

$3y = x - 1 \longrightarrow y = \frac{x}{3} - \frac{1}{3}$

$-3(4) + h = 0 \longrightarrow h = 12$

طول از مبدا $\to \frac{x}{3} - \frac{1}{3} \to x = 1$ $\qquad -3x + 12 = \frac{x}{3} - \frac{1}{3}$

$-9x + 36 = x - 1 \longrightarrow 37 = 10x \longrightarrow x = 3.7$

$\frac{37}{30} - \frac{10}{30} = \frac{27}{30} = 0.9$

ارتفاع $= \frac{|4-1|}{\sqrt{10}} = \frac{3}{\sqrt{10}}$

قاعده $= \sqrt{(2.7)^2 + (0.9)^2} = \frac{9\sqrt{10}}{10}$ $\qquad \frac{1}{2} \times \frac{3}{\sqrt{10}} \times \frac{9\sqrt{10}}{10} = 1.35$

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۹)

$(-\frac{1}{3}, b)$ $\qquad (-\frac{1}{2}, a)$

$m = \sqrt{3} \longrightarrow \frac{a-b}{-\frac{1}{2}+\frac{1}{3}} = \sqrt{3}$ $\qquad a - b = -\frac{\sqrt{3}}{6}$

ضلع مربع $= \sqrt{(a-b)^2 + (-\frac{1}{2}+\frac{1}{3})^2} = \frac{2}{6}$ $\qquad$ قطر $= \frac{\sqrt{2}}{3}$

$$\text{شعاع} = \sqrt{۳^۲ + ۴^۲} = ۵$$

۱۵

$$m_{OA} = \frac{۴}{۳} \to m_L = \frac{-۳}{۴} \qquad m_{L'} = \frac{۴}{۳} \to OA \parallel L'$$

$$y_L = \frac{-۳}{۴}x - \frac{۲۵}{۴}$$

$$y_{OA} = \frac{۴}{۳}x \qquad y_{L'} = \frac{۴}{۳}x + c$$

فاصله OA از L' = شعاع $\longrightarrow \dfrac{c}{\sqrt{۱^۲ + \frac{۱۶}{۹}}} = ۵$

$$c = \frac{۲۵}{۳}$$

$$\left(\frac{-۳}{۴}x - \frac{۲۵}{۴} = \frac{۴}{۳}x + \frac{۲۵}{۳}\right) \times ۱۲$$

$$۲۵x = -۱۷۵ \longrightarrow x = -۷$$

$$y = \frac{-۲۸}{۳} + \frac{۲۵}{۳} = -۱$$

$$xy = ۱$$