امیرمهدی بنگلی پور احمدی — تکلیف ۱۷ — یازدهم تجربی B

1) $m = \frac{\Delta y}{\Delta x} = \frac{m-k}{4+2} = \frac{m-k}{6} = -\frac{1}{2} \to m-k=-3 \to |m-k| = 3 = \Delta y$

$AB = \sqrt{(6)^2+(3)^2} = \sqrt{36+9} = \sqrt{45} = 3\sqrt{5} \to S = 45$

2) $AB = \sqrt{16+9} = \sqrt{25} = 5$ (1) $\quad m_{AB} = m_{CD} = -\frac{3}{4} = \frac{3}{-1-2x} \to -1-2x = 4 \to x = \frac{3}{2} \to C(\frac{3}{2}, y)$

$D(-\frac{5}{2}, y+3)$

$m_{BC} \times m_{CD} = -1 \xrightarrow[m_{CD}=-\frac{3}{4}]{} m_{BC} = \frac{4}{3} = \frac{y-1}{-\frac{3}{2}} \to y-1 = -2 \to y = -1$

$\to C(\frac{3}{2}, -1) \ , \ D(-\frac{5}{2}, 2)$

$BC = \sqrt{(\frac{3}{2})^2 + (2)^2} = \frac{5}{2}$ (2)

(1),(2) → محیط مستطیل $= 2\times(\frac{5}{2}+5) = 15$

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

$a = \tan\alpha \xrightarrow{\alpha=60^\circ} \sqrt{3}$

$\to \frac{-2m}{m^2-1} = \sqrt{3} \to \sqrt{3}m^2 + 2m - \sqrt{3} = 0$

$\to |m_2 - m_1| = \frac{\sqrt{16}}{\sqrt{3}} = \frac{4}{\sqrt{3}} = \frac{4}{3}\sqrt{3}$

4) $BC: y = 2x-3 \Rightarrow y-2x+3 = 0$

$m = \frac{11-3}{7-3} = \frac{8}{4} = 2 \to y = 2x+b \xrightarrow{(3,2)} 3 = 6+b \to b = -3$

$AH = \frac{|9+3-2|}{\sqrt{5}} = \frac{10}{\sqrt{5}} = 2\sqrt{5}$

5) $AB , BC \xrightarrow{\text{معادله}} -2x+7 = \frac{7}{4}x - \frac{19}{4} \to x_B = 3 \to y_B = 1$

$AB: y = -2x+7 \quad BC: y = \frac{7}{4}x - \frac{19}{4}$

$\longrightarrow BH = \frac{|12-17-9|}{\sqrt{16+9}} = \frac{22}{5} = 4.4$

6) $\frac{x}{-\frac{3}{4}} + \frac{y}{-6} = 1 \to -6x\times x - \frac{3}{4}y = \frac{9}{4} \xrightarrow{x=y} -\frac{27}{4}x = \frac{9}{4} \to x = -\frac{1}{3} \to y = -\frac{1}{3}$

$\frac{1}{3}$, $\frac{1}{3}$ $\to \frac{1}{3}\sqrt{2}$

7) $d_1: y = ax+1$
$d_2: y = \frac{1}{a}x + \frac{a-1}{a}$
$\to a = \frac{1}{a} \to a^2 = 1 \to a = \pm 1$

$a = 1 \to \begin{cases} y = x+1 \\ y = x \end{cases} \to$ قق

$a = -1 \to \begin{cases} y = -x+1 \\ y = -x+1 \end{cases}$

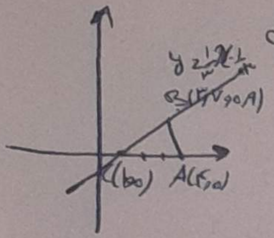
$\to \begin{cases} d_1: y-x = 1 \\ d_2: y-x = 0 \end{cases} \to \frac{|1-0|}{\sqrt{1+1}} = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$ (I)

$\frac{\sqrt{2}}{2}$, 5 $\to \frac{7\sqrt{2}}{2}$ (II)

(I),(II) $\to S = \frac{\sqrt{2}}{2} \times \frac{7\sqrt{2}}{2} = \frac{7}{2} = 3.5$

۸)

$x - 3y = 1 \to y = \frac{1}{3}x - \frac{1}{3} : d_1$



$d_2 : y = -3x + b \xrightarrow{(4,0)} 0 = -12 + b \to b = 12 \to d_2 : y = -3x + 12$

معادله

$d_1 = d_2 \to \frac{1}{3}x - \frac{1}{3} = -3x + 12 \to x = 3/7 \to y = 0/9$

$\to B(3/7, 0/9)$

با توجه به نمودار روبرو ارتفاع مثلث زمانی است که C محل تقاطع خط با محور x باشد

$C: y = 0$

$0 = \frac{1}{3}x - \frac{1}{3} \to x = 1$

$\to C(1,0)$, $A(4,0) \to AC = \sqrt{9 + 0} = 3$

$\to BH = \frac{0/9}{1} = 0/9$

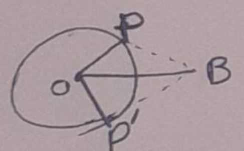
$\to S_{\overset{\triangle}{ABC}} = \frac{0/9 \times 3}{2} = \frac{9 \times 3}{20} = \frac{27}{20} = \frac{135}{100}$

۹)

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

$A(-\frac{1}{2}, a)$
$B(-\frac{1}{3}, b)$ $\to AB = \sqrt{(\frac{1}{6})^2 + (\frac{\sqrt{3}}{6})^2} = \sqrt{\frac{4}{36}} = \frac{2}{6} = \frac{1}{3} \longrightarrow$ اندازه قطر $= \frac{\sqrt{2}}{3}$

۱۰)



$\left.\begin{array}{l} m_{OP} = \frac{4}{3} \\ m_{OP} \times m_{OP'} = -1 \end{array}\right\} \to m_{OP'} = -\frac{3}{4}$ (I)

$r = \overline{OP} = \overline{OP'} = \sqrt{16 + 9} = \sqrt{25} = 5$ (II)

$\overset{(I)}{\Longrightarrow} m_{OP'} = -\frac{3}{4} \to OA: y = -\frac{3}{4}x + b \xrightarrow{(0,0)} y = -\frac{3}{4}x \to P'(x, -\frac{3}{4}x)$ (III)

$\xrightarrow{(I),(III)} \overline{OP'} = \sqrt{x^2 + \frac{9}{16}x^2} = \sqrt{\frac{25}{16}x^2} = |\frac{5}{4}x| = 5 \xrightarrow{x \text{ منفی}} -\frac{5}{4}x = 5 \to x = -4$

$\to x_P + x_{P'} = x_O + x_B \to x_B = -7$

$\to y_P + y_{P'} = y_O + y_B \to y_B = -1$

$\to x_B\ y_B = 7$

$\to P'(-4, 3)$