صفیه محمدحسینی

۱۶٫۵

$A(-۲,k)$ $B(۶,m)$ $m=-\frac{۱}{۲}$ عمودمنصف

۲ راس کناری مربع ABCD

(۲)

$$\frac{m-k}{۶-(-۲)}=-\frac{۱}{۲} \rightarrow ۲m-۲k=-۶ \rightarrow m-k=-۳$$

$AB=(۶,m-k)=(۶,-۳)$ $|AB|=\sqrt{۶^۲+۳^۲}=\sqrt{۳۶+۹}=\sqrt{۴۵}=۳\sqrt{۵}$

محیط مربع $۳\sqrt{۵}\times ۴=۱۲\sqrt{۵}$

$A(-۱,۶)$, $B(۳,۱)$, $C(x,y)$, $D(-۱-x,y+۳)$ ؟ = محیط ذوزنقه

$AB\parallel CD$ $\rightarrow AB=(۳-(-۱),۱-۶)\rightarrow(۴,-۵)$

$CD=(-۱-x-x,y+۳-y)\rightarrow(-۱-۲x,۳)$

(۳)

$$\frac{-۱-۲x}{۴}=\frac{۳}{-۵}=-۱ \rightarrow -۱-۲x=-۴ \rightarrow ۲x=۳ \rightarrow x=\frac{۳}{۲}$$

$|AB|=\sqrt{۴^۲+۵^۲}=۵$

$|CD|=۵$

$BC=(x-۳,y-۱)=(-\frac{۳}{۲},y-۱)$

$AB\perp BC \rightarrow \overrightarrow{AB}\times\overrightarrow{BC}=۰$

$(۴,-۵)\times(-\frac{۳}{۲},y-۱)=۰$

$۴(-\frac{۳}{۲})-۵(y-۱)=۰$

$-۶-۵y+۵=۰ \rightarrow -۵y-۱=۰ \rightarrow y=-۱$

$|BC|=\sqrt{(-\frac{۳}{۲})^۲+(-۱-۱)^۲}=\sqrt{\frac{۹}{۴}+۴}=\sqrt{\frac{۲۵}{۴}}=\frac{۵}{۲}$

$P=۲(|AB|+|BC|)=۲(۵+\frac{۵}{۲})=۲\times\frac{۱۵}{۲}=۱۵$ ✓

$۲mx+(m^۲-۱)y=۳$ m شیب $\tan$ زاویه ۶۰°

$K=-\frac{۲m}{m^۲-۱}=\sqrt{۳}$ $\rightarrow \sqrt{۳}m^۲-\sqrt{۳}+۲m=۰$

(۴)

$\Delta=۴-۴(\sqrt{۳})(-\sqrt{۳})=۱۶$ (-۳)

$$\frac{-۲\pm۴}{۲\sqrt{۳}}=\begin{cases}\frac{-۶}{۲\sqrt{۳}}=-\sqrt{۳}\\ \frac{۲}{۲\sqrt{۳}}=\frac{۱}{\sqrt{۳}}\end{cases}$$

$|m_۱-m_۲|=\frac{۱}{\sqrt{۳}}-(-\sqrt{۳})=\frac{۴}{\sqrt{۳}}=\frac{۴\sqrt{۳}}{۳}$

ملیکا محمدحسینی

$A(1,9)$ $B(3,3)$ $C(7,11)$ طول ارتفاع AH

$m = \frac{11-3}{7-3} = \frac{8}{4} = 2$ $y = ax+b \rightarrow y_{BC} = 2x - 3$ ۲

$d_{AH} = \frac{|ax_0+by_0+c|}{\sqrt{a^2+b^2}} = \frac{|2\times 1 - 9 - 3|}{\sqrt{4+1}} = \frac{|-10|}{\sqrt{5}} = \frac{10}{\sqrt{5}} = 2\sqrt{5}$

$AB = y + 2x = 7$ جایگذاری در BC → $2(7-2x) - 7x = -19 \rightarrow 14 - 4x - 7x = -19 \rightarrow -11x = -33$

$AC = 4y - 3x = 17 \rightarrow 4y - 3x - 17 = 0$

$BC = 2y - 7x = -19$ $x = 3$

طول ارتفاع BH = ?

فاصله B از خط AC $y = 7 - 2\times 3 = 1 \rightarrow B(3,1)$ ۲

$\rightarrow d = \frac{|-3\times 3 + 4\times 1 - 17|}{\sqrt{3^2+4^2}} = \frac{|-22|}{\sqrt{25}} = \frac{22}{5} = 4/4$

$a = \frac{6}{-\frac{3}{4}} = -8 \rightarrow y = -8x - 6$

$x = -8x - 6 \rightarrow 9x = -6 \rightarrow x = -\frac{2}{3}$ $y = -\frac{2}{3}$ ۲

قطر $= \frac{2}{3}\sqrt{2}$

$y - ax = 1$ قطر = ۵ $(1,2)$ نقطه رأس مستطیل مساحت مستطیل = ?

$ay - x = a - 1$

$y = ax + 1 \rightarrow 2 = a + 1 \rightarrow a = 1 \rightarrow y = x + 1$

$y = \frac{1}{a}x + \frac{a-1}{a} \rightarrow y - x = 0 \rightarrow y = x$ ۲

$\frac{|1-0|}{\sqrt{1^2+1^2}} = \frac{1}{\sqrt{2}}$ عرض $5^2 = ?^2 + (\frac{1}{\sqrt{2}})^2 \rightarrow 25 = ?^2 + \frac{1}{2} \rightarrow ?^2 = \frac{49}{2} \Rightarrow ? = \frac{7}{\sqrt{2}}$

طول×عرض $= \frac{7}{\sqrt{2}} \times \frac{1}{\sqrt{2}} = \frac{7}{2} = 3/5$

$A(4,0)$ $x - 3y = 1$ در ناحیه اول چه حرکتی؟

$x - 3y - 1 = 0 \rightarrow A = 1, B = -3, C = -1$ $d = \frac{|1\times 4 - 3\times 0 - 1|}{\sqrt{1^2+3^2}} = \frac{3}{\sqrt{10}}$ طول ضلع ۰/۵

$y = \frac{x-1}{3}$ $S = \frac{1}{2}\times|BC|\times d$

$x > 0,\ y > 0 \rightarrow x - 1 > 0 \rightarrow x > 1$

$|BC| = \sqrt{(x_2-x_1)^2 + (\frac{x_2-x_1}{3})^2} = \sqrt{(x_2-x_1)^2(1+\frac{1}{9})} = \sqrt{\frac{10}{9}(x_2-x_1)^2} = \frac{\sqrt{10}}{3}(x_2-x_1)$

$S = \frac{1}{2}\times BC \rightarrow \frac{1}{2}\times\frac{\sqrt{10}}{3}(x_2-x_1)\times\frac{3}{\sqrt{10}} = \frac{1}{2}(x_2-x_1)$

$B(1,0) \rightarrow y = 0 \rightarrow x - 3\times 0 = 1 \rightarrow x = 1$ $AB^2 = AH^2 + BH^2 \rightarrow 3^2 = [\frac{3}{\sqrt{10}}]^2 + BH^2 \rightarrow BH = \frac{9}{\sqrt{10}}$

$\frac{3\times 5}{2} - \frac{1}{2} = \frac{49}{2}$ $S \Rightarrow \Delta x = \frac{(4-1)}{2} = 1/5$

$S = \frac{3}{\sqrt{10}} \times \frac{9}{\sqrt{10}} \times \frac{1}{2} = \frac{27}{20}$

ملیکا محمدحسنی

$P_1 = (-\frac{1}{2}, a)$ $\quad$ $P_2 = (-\frac{1}{3}, b)$

$d = \sqrt{(\Delta x)^2 + (\Delta y)^2} = \sqrt{(-\frac{1}{3}+\frac{1}{2})^2 + (b-a)^2} = \sqrt{(\frac{1}{6})^2 + (b-a)^2} =$

$\sqrt{\frac{1}{36} + (b-a)^2}$ طول ضلع مربع

۲

$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{b-a}{\frac{1}{6}} = 6(b-a)$

$6(b-a) = \sqrt{3} \longrightarrow b-a = \frac{\sqrt{3}}{6}$

$d = \sqrt{\frac{1}{36} + (\frac{\sqrt{3}}{6})^2} = \sqrt{\frac{1}{36} + \frac{3}{36}} = \sqrt{\frac{4}{36}} = \frac{2}{6} = \frac{1}{3}$ طول ضلع مربع

$d\sqrt{2} = \frac{1}{3}\sqrt{2} \longrightarrow \frac{\sqrt{2}}{3}$ قطر مربع

$(-3,-4)$ مرکز جسم مختصات $\quad$ عرض x طول مختصات سر چرخ نقطه ۰ $\quad$ $r = \sqrt{3^2+4^2} = 5$

$m_r = \frac{y_1 - 0}{x_1 - 0} = \frac{y_1}{x_1}$

$m_L = -\frac{1}{m_r} = -\frac{x_1}{y_1} \longrightarrow y + 4 = -\frac{x_1}{y_1}(x+3) \longrightarrow y = -\frac{x_1}{y_1}(x+3) - 4$

$(x,y) \longrightarrow (\cos 45, \sin 45) \longrightarrow$ $x = -\frac{5}{\sqrt{2}}$ $\quad$ $y = \frac{5}{\sqrt{2}}$ $\quad$ $-\frac{5}{\sqrt{2}} - \frac{5}{\sqrt{2}} = \frac{-25}{2}$

10) $L : y = -\frac{\mu}{\gamma} x - \frac{\gamma\alpha}{\gamma}$

$L' : y = \frac{\gamma}{\mu} x + k$

$OA = \alpha \quad OL' = \frac{\mu}{\alpha} k = \alpha \rightarrow k = -\frac{\gamma\alpha}{\mu}$

$\frac{\gamma\alpha}{1\gamma} x = \frac{-1\gamma\alpha}{1\gamma} \rightarrow x_B = -\gamma \quad y_B = -1$

$-\sqrt{\gamma} - 1 = \gamma$