

پریا امین

$$a = \frac{m-k}{4-(-2)} = -\frac{1}{2} \rightarrow 2m-2k = -4 \rightarrow m-k = -2 \quad -1$$

$$\text{فاصلہ دو نقطہ} = \sqrt{(m-k)^2 + (4-(-2))^2} = \sqrt{9+36} = \sqrt{45} = 3\sqrt{5}$$

ضلع مربع

$$\text{مساحت} = (3\sqrt{5})^2 = 9 \times 5 = 45$$

-2

$$n_A + n_C = n_B + n_D \rightarrow -1 + n = 3 - 1 - n \rightarrow$$

$$2n = 3 \rightarrow n = \frac{3}{2}$$

$$10 \text{ طول } AB = \sqrt{(4-1)^2 + (-1-3)^2} = \sqrt{9+16} = \sqrt{25} = 5$$

$$m_{AB} \times m_{AD} = -1 \rightarrow \frac{3(y-1)}{4} = -1 \rightarrow 3y-3 = -4 \rightarrow 3y = -1 \rightarrow y = -\frac{1}{3}$$

$L \rightarrow -\frac{3}{2} \quad L \rightarrow -\frac{y-1}{1/5}$

$$15 \text{ } AD = \sqrt{(-2, 5 - (-1))^2 + (2-4)^2} = \sqrt{(-1, 5)^2 + (-2)^2} = \sqrt{1+25+4} = \sqrt{30}$$

$= 2(5)$

$$k_3 = 2(5+2(5)) = 2(15) = 30$$

پہلا اسی

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$$2m^2 + (m^2 - 1)y = 3 \rightarrow (m^2 - 1)y = -2m^2 + 3$$

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

$$(K) \text{ شیب: } \frac{-2m}{m^2 - 1} \quad |\tan 40^\circ| = |\sqrt{3}| = \sqrt{3}$$

$$\frac{-2m}{m^2 - 1} = \pm \sqrt{3} \rightarrow \frac{-2m}{m^2 - 1} = \sqrt{3} \rightarrow -2m = \sqrt{3}(m^2 - 1) \rightarrow$$

$$-2m = \sqrt{3}m^2 - \sqrt{3} \rightarrow \sqrt{3}m^2 + 2m - \sqrt{3} = 0$$

$$m = \frac{-2 \pm \sqrt{4 - 4(\sqrt{3})(-\sqrt{3})}}{2\sqrt{3}} = \frac{-2 \pm 4}{2\sqrt{3}} \rightarrow m_1 = \frac{1}{\sqrt{3}}, m_2 = -\sqrt{3}$$

$$\frac{-2m}{m^2 - 1} = -\sqrt{3} \rightarrow -2m = -\sqrt{3}(m^2 - 1) \rightarrow$$

$$-2m = -\sqrt{3}m^2 + \sqrt{3} \rightarrow \sqrt{3}m^2 - 2m - \sqrt{3} = 0$$

$$m = \frac{2 \pm \sqrt{(-2)^2 - 4(\sqrt{3})(-\sqrt{3})}}{2\sqrt{3}} = \frac{2 \pm 4}{2\sqrt{3}} \rightarrow m_3 = \sqrt{3}, m_4 = -\frac{1}{\sqrt{3}}$$

ہوں در صورت سوال (فہم) با صحت "مثبت" محور کا فقط

قابل قبول $-\sqrt{3}$ و $\frac{1}{\sqrt{3}}$

جی ہاں

$$\left| -\sqrt{3} - \frac{1}{\sqrt{3}} \right| = \frac{|-3-1|}{\sqrt{3}} = \frac{4}{\sqrt{3}}$$

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برای احسی

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$$\text{مقادیر } BC \rightarrow m = \frac{11 - 3}{4 - 3} = \frac{8}{1} = 8$$

$$\text{BC: } y = mx + b \rightarrow 3 = 8(3) + b \rightarrow 3 = 24 + b \rightarrow b = -21$$

$$BC: y = 8x - 21$$

$$BC \text{ از } A \text{ فاصله} = \frac{|8 - 24 + 21|}{\sqrt{64 + 1}} = \frac{|5|}{\sqrt{65}} = \frac{5}{\sqrt{65}} = \frac{1}{\sqrt{13}}$$

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B خطی: BC و AB در فاصله

$$AB: y = -2x + 4$$

$$BC: 8y = 4x - 19 \rightarrow y = \frac{1}{2}x - \frac{19}{4}$$

$$\text{در فاصله: } -2x + 4 = \frac{1}{2}x - \frac{19}{4} \rightarrow 0.5x = 19.25 \rightarrow x = \frac{19.25}{0.5} = \frac{19}{1}$$

$$x = \frac{19}{1}, y = -2\left(\frac{19}{1}\right) + 4 = -38 + 4 = -34$$

$$AC \text{ از } B \text{ فاصله} = \frac{|8y - 4x - 19|}{\sqrt{64 + 1}} = \frac{|8(-34) - 4(19) - 19|}{\sqrt{65}} = \frac{|-272 - 76 - 19|}{\sqrt{65}} = \frac{367}{\sqrt{65}}$$

$$\frac{113}{10}$$

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$$(-\frac{3}{4}, 0) \quad (0, -4)$$

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$$m = \frac{0 - (-4)}{-\frac{3}{4} - 0} = \frac{4}{-\frac{3}{4}} = \frac{16}{-3} = -\frac{16}{3}$$

$$\text{معادله خط} \rightarrow y = mx + b \rightarrow -4 = -\frac{16}{3}(0) + b \rightarrow b = -4$$

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$$y = -\frac{16}{3}x - 4$$

نقطه به صورت قطره و خط روی خط $y = x$ قرار دارد پس

$$x = -\frac{16}{3}x - 4 \rightarrow 9x = -4 \rightarrow x = -\frac{4}{9} = -\frac{4}{9}$$

$$y = -\frac{4}{9}$$

10 فاصله جدا از

$$\text{نقطه} \rightarrow \sqrt{(-\frac{4}{9})^2 + (-\frac{4}{9})^2} = \sqrt{\frac{16}{81} + \frac{16}{81}} = \frac{4}{9}\sqrt{2}$$

قطر مربع

$$y - ax = 1 \quad d_1$$

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$$ay - x = a - 1 \quad d_2$$

$$d_1 \Rightarrow y = ax + 1 \quad m_1 = a$$

$$d_2 \Rightarrow y = \frac{x + a - 1}{a} \quad m_2 = \frac{1}{a}$$

$$\left. \begin{array}{l} \text{موازی} \rightarrow m_1 = m_2 \rightarrow \\ a = \frac{1}{a} \rightarrow a^2 = 1 \rightarrow a = \pm 1 \end{array} \right\}$$

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$$a = 1 \rightarrow d_1: y - x = 1$$

$$d_2: y - x = 0$$

$$\left. \begin{array}{l} P(x, y) \quad d_1: x - 1 = 1 \checkmark \\ \quad \quad \quad d_2: x - 1 = 0 \times \end{array} \right\}$$

پس آن $a = 1$ است، پس P روی d_1 است

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نویسید

$$a = -1$$

$$d_1: y - (-1)x = 1 \rightarrow y + x = 1$$

$$d_2: -1y - x = -1 - 1 \Rightarrow -y - x = -2 \rightarrow y + x = 2$$

$$P(1, 2) \rightarrow d_1: 2 + 1 = 1 \times$$

$$d_2: 2 + 1 = 2 \times$$

نویسید $a = 1$ نقطه P روی خط قرار می گیرد

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$$d_1: y - x = 1$$

$$d_2: y - x = 0$$

$$\left. \begin{array}{l} d_1: y - x = 1 \\ d_2: y - x = 0 \end{array} \right\} \text{فاصله دو خط} = \frac{|c - c'|}{\sqrt{1^2 + (-1)^2}} = \frac{1}{\sqrt{2}}$$

$$\text{مساحت} = \frac{1}{\sqrt{2}}$$

$$\text{قطر} = 1$$

$$\left\{ \left(\frac{1}{\sqrt{2}} \right)^2 + w^2 = 1 \Rightarrow w^2 = \frac{4}{2} \Rightarrow w = \sqrt{\frac{4}{2}} = \frac{2}{\sqrt{2}} \right.$$

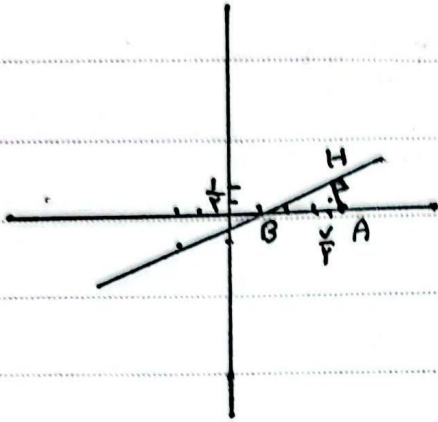
$$\text{مساحت} = \frac{1}{\sqrt{2}} \times \frac{2}{\sqrt{2}} = \frac{2}{2} = 1$$

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$$x - 3y = 1$$

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

ضلعی n برابر فاصلہ A تا خط
است صان ضلع قائم است. زیرا مساحت
Max است.

$$AH = \frac{|x - 3y - 1|}{\sqrt{10}} = \frac{|4 - 3(0) - 1|}{\sqrt{10}} = \frac{3}{\sqrt{10}}$$

$$AB^2 = BH^2 + AH^2$$

$$L \rightarrow AB \rightarrow \text{برفورد } y=0 \rightarrow x - 3(0) = 1 \rightarrow x = 1 \rightarrow AB = 4 - 1 = 3$$

خط $x=1$ را

$$9 = BH^2 + \frac{9}{10} \rightarrow BH^2 = \frac{81}{10} \rightarrow BH = \frac{9}{\sqrt{10}}$$

$$15 \quad \text{مساحت} = \frac{AH \times BH}{2} = \frac{\frac{3}{\sqrt{10}} \times \frac{9}{\sqrt{10}}}{2} = \frac{\frac{27}{10}}{\frac{2}{1}} = \frac{27}{2} = 13.5$$

پیدا آسانی

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$$\left(-\frac{1}{3}, a\right), \left(-\frac{1}{3}, b\right)$$

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

$$\text{طول ضلع مربع} = \sqrt{\left(-\frac{1}{3}-(-\frac{1}{3})\right)^2 + (b-a)^2} \rightarrow \sqrt{\left(\frac{1}{3}\right)^2 + \left(\frac{\sqrt{3}}{3}\right)^2} = \sqrt{\frac{1}{9} + \frac{3}{9}} =$$

$$10 \quad \sqrt{\frac{4}{9}} = \frac{2}{3} = \frac{1}{3}$$

$$(h) \quad \text{طول قطر مربع} = \sqrt{\left(\frac{1}{3}\right)^2 + \left(\frac{1}{3}\right)^2} = h^2 \rightarrow \frac{2}{9} = h^2 \rightarrow h = \frac{\sqrt{2}}{3}$$

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15 خط از مرکز دایره که به نقطه ی $(-3, -4)$ می رسد به خط مماس L عمود است.

$$\text{شیب شعاع } OT_1 = \frac{-4-0}{-3-0} = \frac{-4}{-3} = \frac{4}{3}$$

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شیب خط مماس $L \leftarrow OT_1 \perp L$

$$m_L = -\frac{1}{m_{OT_1}} = -\frac{1}{\frac{4}{3}} = -\frac{3}{4}$$

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معادله خط L : $T_1(-3, -4)$

$$y - (-4) = -\frac{3}{4}(x - (-3))$$

$$y + 4 = -\frac{3}{4}(x + 3) \rightarrow 4y + 16 = -3x - 9$$

$$L: 3x + 4y = -25$$

خط L' به خط L عمود ←

$$m_{L'} = -\frac{1}{m_L} = -\frac{1}{-\frac{3}{4}} = \frac{4}{3}$$

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خط L' نیز مماس است ← OT_2 بر آن عمود است

$$m_{OT_2} = m_L = -\frac{3}{4}$$

$T_2(x_2, y_2)$ روی دایره است و از مرکز عبور می کند.

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$$\frac{y_2}{x_2} = -\frac{3}{4} \Rightarrow y_2 = -\frac{3}{4}x_2$$

$$y_2 = -\frac{3}{4}(-4) = 3 \leftarrow x_2 = -4$$

$$r = 5, OT_1 \perp OT_2$$

$T_2(-4, 3)$ قابل قبول

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معادله خط L' مماس در $T_2(-4, 3)$ و شیب $\frac{4}{3}$.

$$y - 3 = \frac{4}{3}(x - (-4)) \rightarrow 3y - 9 = 4x + 16 \rightarrow L': 4x - 3y = -25$$

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$$L: (3x + 4y - 2z) \times 3$$

$$L': (4x - 3y - 2z) \times 4$$

$$9x + 12y - 6z$$

$$16x - 12y - 8z$$

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$$(9x + 16x) + 12y - 12y = -6z + (-8z)$$

$$25x - 14z \rightarrow x_p = \frac{-14z}{25} = -\frac{14}{25}z$$

$$3(-\frac{14}{25}z) + 4y - 2z \rightarrow -\frac{42}{25}z + 4y - 2z \rightarrow 4y - \frac{52}{25}z \rightarrow$$

$$y_p = -1$$

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$$(-1) \times (-1) = 1$$

← result

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