

$$m_{AB} = \frac{1-4}{4-(-4)} = \frac{1}{3}$$

خط مستقیم = $m = -3$

معادله خط: $y - 4 = -3(x + 1)$

نقطه = $m(-1, 4)$
 $\frac{-3+1}{4} \rightarrow \frac{4+n}{4}$

$$y = -3x + 7$$

$$BC = \sqrt{(-1+3)^2 + (3-4)^2} = \sqrt{2}$$

$$m_{BC} = \frac{3-4}{-1+3} = -\frac{1}{2}$$

BC خط $y - 4 = -\frac{1}{2}(x + 1) \Rightarrow 2x + 3y - 9 = 0$

فاصله خط از A $\Rightarrow AH = \frac{|2(3) + 3(1) - 9|}{\sqrt{2^2 + 3^2}} = \frac{0}{5}$

مسئله 3
 چون مرکز دایره $\alpha = 1 \Rightarrow \alpha = \frac{|3 - (2)|}{\sqrt{2}} = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$

شعاع دایره = $r = \frac{3\sqrt{2}}{2}$

$$S = \pi r^2 = \pi \left(\frac{3\sqrt{2}}{2} \right)^2 = \frac{9\pi \times 2}{4} = \frac{9\pi}{2}$$

$$m_{AB} = \frac{1-3}{3-2} = -1$$

AB خط $y - 3 = -1(x - 2) \rightarrow y = -x + 5$

نقطه وسط $= m \left(\frac{2+3}{2}, \frac{3+1}{2} \right) = (2.5, 2)$

خط $\Rightarrow m = 1 \rightarrow y - 3 = 1(x + 1) \Rightarrow y = x + 4$

نقطه تقاطع AB و H $= x + 4 = -x + 5 \rightarrow 2x = 1 \rightarrow x = 0.5$ و $y = 4.5$

$H = (0.5, 4.5)$

$$MH = \sqrt{(3-0.5)^2 + (2-4.5)^2} = \frac{\sqrt{17}}{2}$$

$$m = -1$$

$$m_1 \times m_2 = -1$$

$$\textcircled{a} \quad m_1 = \frac{1}{r} \quad m_2 = -\frac{1}{r} \Rightarrow m_1 \times m_2 = \frac{1}{r^2} \neq -1$$

$$m_2 - r m_1 - r m - \omega = 0 \Rightarrow g = \frac{x-r}{r} - \frac{\omega}{r m}$$

$$m_2 + r m_1 - m + r = 0$$

$$m_1 = \frac{1}{r}$$

$$g = -\frac{1}{r}x + \frac{m-r}{r m} \Rightarrow m_2 = -\frac{1}{r}$$

$$m_1 m_2 = -\frac{1}{r^2}$$

میتوانیم بگوییم که
مجموعه نقاطی که روی خط مماس قرار دارند

سوال ۴

$$\begin{cases} AB = x + ry = r \\ AC = y - x = r \\ BC = x + y = r \end{cases} \quad \frac{AM}{AB} = \frac{r}{r}$$

سوال ۵

$$r_0 = \frac{|b|}{\sqrt{1 + (1/r)^2}} = \frac{|b|}{\sqrt{\omega/r}} = r_0 \Rightarrow b = \pm 10\sqrt{2}$$

$$y=0 \Rightarrow 0 = -\frac{1}{r}x + b \Rightarrow x = rb \Rightarrow A (rb, 0)$$

$$x=0 \Rightarrow y=b \Rightarrow B (0, b)$$

$$AB = \sqrt{(rb)^2 + (0-b)^2} = \sqrt{r^2 b^2 + b^2} = \sqrt{\omega b^2} = |b| \sqrt{\omega} = 10\sqrt{2} \times \sqrt{2}$$

$$AB = 20$$

(سوال ۸)

$$mg = \cancel{m}x - \cancel{P}$$

$$0 \text{ در } x = \frac{G}{P}$$

$$y = mx + x + P$$

در (۰، ۰) خط

$$m \times m_P = -P \quad \text{در } \frac{G}{P}$$

(سوال ۹)

$$y = -\frac{P}{P} x \quad M(-P, P)$$

$$y - P = -\frac{P}{P} (x + P) \Rightarrow y = -\frac{P}{P} x + \frac{P}{P}$$

$$y = -\frac{P}{P} x + \frac{P}{P}$$

(سوال ۱۰)

$$A(1, 2)$$

$$b \Rightarrow y = x + 4$$

$$A'(a, b)$$

$$m = -1$$

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

$$x + 4 = -x + 3 \Rightarrow 2x = -1 \Rightarrow x = -\frac{1}{2}$$

$$A' = (x_H - x_A, y_H - y_A) = (1, -1)$$

$$a' = -1 \quad \text{و} \quad b' = 2$$

$$b - 2a \Rightarrow 2 - 2(-1) = 2 + 2 = 4$$