

تکلیف ۱۷

پند و اندرز

تجربش کنه

۲۰

A(-1, k)

B(1, m)

a = -1/r

①

m = \frac{\Delta y}{\Delta x} = -1/r

\frac{k-m}{-1-r} = -1/r \rightarrow k-m = r

۲

مسئله: \sqrt{r^2+9} = r\sqrt{5}

S = r\sqrt{5} \times r\sqrt{5} = 5r^2

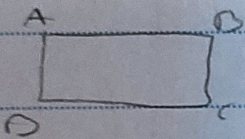
A(-1, 1)

B(1, 1)

C(m, y)

D(-1-a, y+r)

②



AB \parallel CD \rightarrow m_{AB} = m_{CD} \rightarrow \frac{r}{-1} = \frac{r}{-1-a} \rightarrow a = \frac{r}{r+1}

AD \perp AC \rightarrow m_{AD} \times m_{AC} = -1

\Rightarrow \frac{r}{-1} \times \frac{y}{r} = -1

۳

\frac{r}{-1} \times \frac{1-y}{m} = -1 \rightarrow \frac{ry-r}{-1} = -1 \rightarrow y = r

\sqrt{4+1} = 5

\sqrt{\frac{4}{5}+1} = \frac{5}{r} = 1.5 \rightarrow r = 2(5+1.5) = 15

r_{max} + (m^2-1)y = r

(m^2-1)y = -r_{max} + r \rightarrow y = \frac{-r_{max}}{m^2-1} + \frac{r}{m^2-1}

۴

\tan 45^\circ = \sqrt{r}

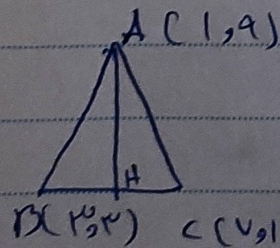
\frac{-r_{max}}{m^2-1} = \sqrt{r} \rightarrow \sqrt{r_{max}^2 + r_{min}^2} = \sqrt{r} = 0

۵

m^2 + r_{min} - r = 0 \rightarrow (m+r)(m-1)

m - m_1 = \frac{\sqrt{r}}{r} \rightarrow (-\sqrt{r}) = \frac{\sqrt{r}}{r}

-\sqrt{r} = \frac{-r}{\sqrt{r}} \rightarrow \frac{1}{\sqrt{r}} = \frac{\sqrt{r}}{r}



AH = 9 \rightarrow AC \perp AB, A \text{ inside}

⑥

m_{BC} = \frac{11-2}{1/2-1/2} = r

y - r = r(m - r) \rightarrow y - r_{min} + r = 0

AH = \frac{|4 - r - r|}{\sqrt{1+r}} = \frac{1-r}{\sqrt{5}} \times \frac{\sqrt{5}}{\sqrt{5}} = \frac{r\sqrt{5}}{5}

۷

AB \perp AC \rightarrow r_{AB} = r_{AC}

AC \perp BC \rightarrow r_{AC} = r_{BC}

BC \perp AB \rightarrow r_{BC} = r_{AB}

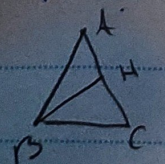
⑧

BH = 0

AC \perp AB, B \text{ inside}

BC \perp AC, B \text{ inside}

۹

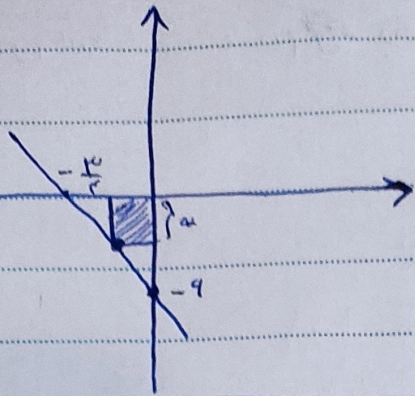


BH = \frac{|1 \cdot 4 - 1 \cdot 1|}{\sqrt{1+9}} = \frac{3}{\sqrt{10}}

AB \perp AC \rightarrow r_{AB} = r_{AC}

11m - r_{min} = 0 \rightarrow m = r_{min}

y = +1



$$\frac{a}{\frac{r}{1}} = \frac{1-a}{1}$$

(2)

$$1a = \frac{1}{r} - \frac{r}{1}a \Rightarrow \frac{r}{1}a = \frac{1}{r} \Rightarrow a = \frac{1}{r}$$

$$p, k = a\sqrt{r} = \frac{1}{r}\sqrt{r}$$

(3)

$$y = qa + 1$$

$$ay - a = a - 1$$

$$k = a$$

(4)

$$S = 1$$

$$y = \frac{1}{a}a + \frac{a-1}{a}$$

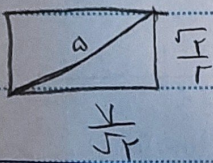
نکته: این دایره از خط عبور می کند

$$a = \frac{1}{a} \rightarrow a^2 = 1 \rightarrow a = \pm 1$$

$$y = a + 1 \rightarrow y = a \quad (1, 2) \quad r = 1, 1 \checkmark$$

$$(a = -1) \quad y = -a + 1 \quad y = -a + r \quad (1, 2) \quad \times$$

$$\frac{|y - a|}{\sqrt{1 + r^2}} = \frac{1}{\sqrt{r}} = \frac{r}{r}$$



$$\sqrt{r^2 - (\frac{\sqrt{r}}{r})^2} = \frac{1}{\sqrt{r}}$$

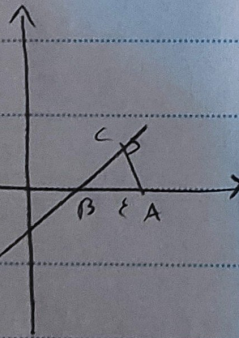
$$S = \frac{1}{\sqrt{r}} \times \frac{\sqrt{r}}{r} = \frac{1}{r} = \frac{1}{1} = 1$$

A(1, 0)

$$a - 4y = 1$$

(1/r, 1/r) مرکز دایره

(5)



$$y = \frac{1}{r}a - \frac{1}{r}$$

$$m = -r \rightarrow y = -r(a - 1)$$

$$y = -ra + 1r$$

$$-ra + 1r = \frac{1}{r}a - \frac{1}{r} \rightarrow a = r, r \quad y = 0, 1$$

$$AC = \sqrt{(r-1)^2 + (1-0)^2} = 0, 9\sqrt{10}$$

(6)

$$BC = \sqrt{(1-0)^2 + (0-1)^2} = 0, 9\sqrt{10}$$

$$S = \frac{AB \times BC}{r} = \frac{0, 9\sqrt{10} \times 0, 9\sqrt{10}}{r} = 1, 80$$

$$(-\frac{1}{r}, a)$$

$$(-\frac{1}{r}, b)$$

$$m = \sqrt{r}$$

(7)

$$m = \sqrt{r} \rightarrow \frac{b-a}{-\frac{1}{r} + \frac{1}{r}} \rightarrow \frac{b-a}{\frac{1}{r}} = \sqrt{r} \rightarrow b-a = \frac{\sqrt{r}}{r}$$

(8)

$$\sqrt{(\frac{\sqrt{r}}{r})^2 + \frac{1}{r}} = \frac{r}{r} = \frac{1}{r}$$

$$\rightarrow p, k = a\sqrt{r} = \frac{\sqrt{r}}{r}$$

$$c(-r_0 - R) \sqrt{r^2 + R^2} = d \xrightarrow{\text{Euler}} r = d$$

1.0
r

$$m_{OA} = \frac{F}{\mu} \rightarrow m_{BC} = \frac{F}{\mu} \Rightarrow BC \Rightarrow y = \frac{F}{\mu} x + b \Rightarrow \mu y - Fx - \mu b = 0$$

$$\frac{\mu y - Fx - \mu b}{d} = d \Rightarrow |- \mu b| = \mu d \rightarrow b = \frac{\mu d}{\mu} / 2 = \frac{\mu d}{\mu} \cdot \frac{1}{2}$$

$$BC \rightarrow y = \frac{F}{\mu} x + \frac{\mu d}{\mu} \rightarrow BC: -Fx + \mu y - \mu d = 0 \quad m_{AB} = -\frac{\mu}{F}$$

$$y + F = -\frac{\mu}{F} (x + R) \Rightarrow y = -\frac{\mu}{F} x - \frac{\mu R}{F} \rightarrow AB: \mu x + Fy + \mu R = 0$$

$$m = \frac{-\frac{\mu R}{F} - 1 \dots}{\frac{-14 - 9}{-10}} = -1$$

$$y = \frac{1 \dots - 10}{-14 - 9} = -1 \Rightarrow x = -1x - 10 = +10$$