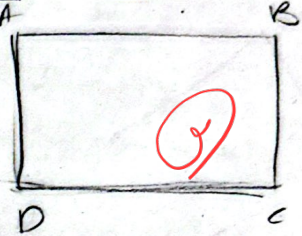


۱۔ نقطہ $A(-2, 4)$ و $B(4, m)$ کے قفا سبب $-\frac{1}{r}$ و نقطہ A کے مربع - مستقیم
 $\frac{1}{r} = -\frac{1}{r} \cdot n + b \rightarrow \left(4, \frac{-2+b}{m}\right) \left(-2, \frac{1+b}{4}\right) \rightarrow \sqrt{(4+2)^2 + \left(\frac{b+1}{m} - \frac{b+1}{4}\right)^2} \rightarrow$
 $\sqrt{36+9} \rightarrow 3\sqrt{5} \rightarrow (3\sqrt{5})^2 = (45)$

۲۔ نقطہ $A(-1, 2)$ و $B(3, 1)$ و $C(m, y)$ و $D(-1-n, y+3)$ کے قفا سبب
 $x_D + m_C = x_B + x_A \rightarrow -1+n = 3-1-m \rightarrow -1+n = 1-n \rightarrow n = \frac{3}{2}$
 $y_A + y_C = y_B + y_D \rightarrow 2+y = 1+3+y \rightarrow$ (نہیں ہوتا) $\rightarrow$
 $AD \perp AB \rightarrow \frac{2-y-3}{-1-n-3} \times \frac{1-2}{3-(-1)} = -1$
 $1-y \times \frac{3}{-4-n} = 1 \rightarrow 3-3y = 4(-n-1) \rightarrow 3-3y = -4n-4 \rightarrow y = -1$
 $AB = \sqrt{9+4} = 5$
 $BC = \sqrt{\left(3-\frac{3}{2}\right)^2 + (1-(-1))^2} = \sqrt{\left(\frac{3}{2}\right)^2 + 2^2} = \sqrt{\frac{9}{4} + 4} = \sqrt{\frac{25}{4}} = \frac{5}{2}$

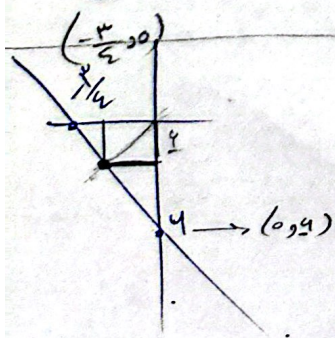


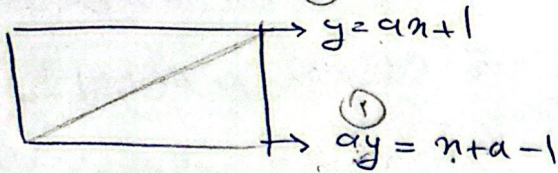
۳۔ $rmn + (m^2-1)y = 3$ سبب
 $\frac{-rm}{m^2-1} = \sqrt{3} \rightarrow \sqrt{3}m^2 - \sqrt{3} = -rm \rightarrow \sqrt{3}m^2 + rm - \sqrt{3} = 0$
 $\frac{1}{a} = \frac{\sqrt{3}}{a} \rightarrow \frac{\sqrt{3} - \sqrt{3}(-\sqrt{3} \times 3)}{\sqrt{3}} \rightarrow \frac{\sqrt{3} + 3}{\sqrt{3}} = \frac{4\sqrt{3}}{3}$

۴۔ $BC = \frac{11-3}{4-3} = 8$ سبب
 $ry = -5m + 12$
 $\frac{y-m+3}{\sqrt{5}} = \frac{11-3}{4-3} = 8$
 $\frac{y-m+3}{\sqrt{5}} = 8 \rightarrow y-m+3 = 8\sqrt{5}$

۵۔ $B(3, 1)$ سبب
 $ry - 3m - 14 = \frac{3-9-14}{\sqrt{18}} = \frac{-10}{\sqrt{18}}$
 $ry - 3m - 14 = -\frac{10}{\sqrt{18}}$

۶۔ $y = +n$ سبب
 $\frac{4}{3} \rightarrow \frac{4}{3}n + 4$
 $\frac{4}{3}n + 4 = n \rightarrow n = \frac{4}{2} = 2$
 $\sqrt{2} \frac{2}{3}$





نقطه (1, 2) روی خط ① نیست و نه روی خط ② باشد
 $(2a = a \rightarrow \boxed{a = 0})$

$a = \frac{1}{a} \rightarrow \boxed{a = \pm 1} \rightarrow$ (1, 2) $\rightarrow (a = 1)$

$\left. \begin{matrix} y = x + 1 \\ y = x - 1 \end{matrix} \right\} \rightarrow \frac{1 - (-1)}{\sqrt{2}} = \frac{2}{\sqrt{2}} = \sqrt{2} \rightarrow \sqrt{2} \times \frac{1}{\sqrt{2}} = \boxed{1}$

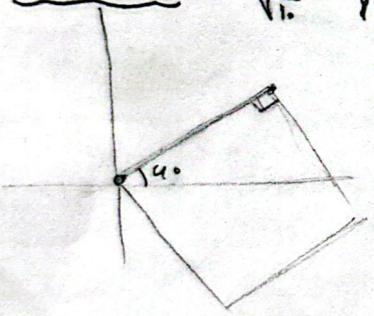
مساحت $= \sqrt{2} \times \sqrt{2} = \boxed{2}$



$(I) \times (II) \Rightarrow S_{max} = \boxed{135}$

$F = 100 - 1 = \frac{99}{\sqrt{10}}$
 $\rightarrow AC = AB = \frac{3}{\sqrt{10}}$ باشد مساحت =
 $\frac{1}{2} \times \frac{3}{\sqrt{10}} \times \frac{3}{\sqrt{10}} = \frac{9}{20}$
 مساحت مثلث
 AB و خط BC در تقاطع است
 $y = \frac{3}{10}$ است
 (I) $\sqrt{\frac{9}{100} + \frac{9}{100}} = \frac{3}{5}$

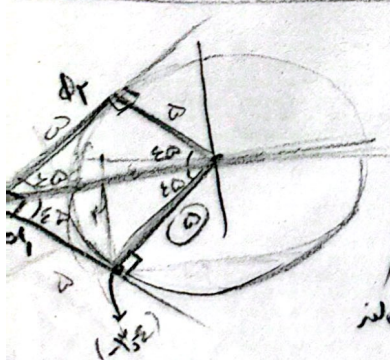
II) BC برابر $\frac{3}{\sqrt{10}}$ باشد $\rightarrow$ چون BC را می توانیم صرفاً با همان جا کنیم $\frac{1}{\sqrt{10}}$ و $\frac{1}{\sqrt{10}}$ باشد
 آن است و مساحت برابر است با $\frac{1}{2} \times \frac{3}{\sqrt{10}} \times \frac{3}{\sqrt{10}} = \frac{9}{20}$



$\left. \begin{matrix} -\frac{1}{4}\sqrt{3} + m = b \\ -\frac{1}{4}\sqrt{3} + m = a \end{matrix} \right\} \rightarrow \sqrt{\left(\frac{1}{4}\right)^2 + \left(\frac{1}{4}\sqrt{3}\right)^2}$

$\sqrt{\frac{1}{16} + \frac{3}{16}} = \sqrt{\frac{4}{16}} = \frac{1}{2} = \boxed{\frac{1}{2}}$

$\boxed{\frac{1}{2} = \frac{\sqrt{3}}{2}}$



10- (ایستادن روی خط ①)
 $(-4, 3) \rightarrow (2, 4)$
 $x^2 + y^2 = 25$ و $(-5, -4)$ فاصله $5\sqrt{2}$
 $\sqrt{(4+5)^2 + (2+4)^2} = 5\sqrt{2}$
 $y = 3$ و $m = 4$ و $y = -\frac{4}{3}x$
 باید از این معادله ها هم استفاده کنیم
 نقطه برخورد بدست می آید

$\frac{5}{3}x \rightarrow -\frac{3}{5}x - \frac{15}{5}$

$\frac{5}{3}x + \frac{15}{3} = -\frac{3}{5}x - \frac{15}{5} \xrightarrow{\times 15} 14x + 100 = -9x - 15$
 $115 = -23x \rightarrow x = -5$
 $y = -1$
 $\boxed{xy = 1}$