

$$C(-2, -1)$$

$$AB = \sqrt{(1-2)^2 + (5-3)^2}$$

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

$$= \sqrt{1+4}$$

$$= \sqrt{5} \text{ किंवा } \sqrt{1+4+1}$$

$$BC = \sqrt{(2+2)^2 + (3+11)^2}$$

$$= \sqrt{3^2 + 16^2}$$

$$= \sqrt{9+256}$$

$$AC = \sqrt{(2+2)^2 + (3+11)^2}$$

$$(1,4) = \sqrt{(4)^2 + (14)^2}$$

$$= \sqrt{16+196} = 14$$

$$BC = \sqrt{212}$$

\therefore यहाँ दोनों दोलाव अभी बराबर हैं।

$$\sqrt{(1-2)^2 + (5+11)^2} = 14$$

$$\sqrt{(2-1)^2 + (3+11)^2} = 14$$

$$\sqrt{f'(t-1)} =$$

$$\sqrt{f'(t+1)} =$$

इसके लिए, $A(5, -2)$, $B(6, 4)$ और $C(7, -2)$ दोनों लोंग प्रस्तुत हैं।

$$\text{फल } | P(x) | =$$

$$AB = \sqrt{(5-6)^2 + (-2-4)^2}$$

$$= \sqrt{(-1)^2 + (-6)^2}$$

$$= \sqrt{1+36}$$

$$= 2\sqrt{37}$$

$$BC = \sqrt{(6-7)^2 + (4+2)^2}$$

$$\sqrt{(1-2)^2 + (5+11)^2} = 14$$

$$\sqrt{4+36}$$

$$= 2\sqrt{37}$$

$$= 2\sqrt{37}$$

$$AC = \sqrt{(5-7)^2 + (-2+2)^2}$$

$$= \sqrt{(-2)^2 + 0^2}$$

$$= \sqrt{4+0} = 2A = 2A = 0 = 2\sqrt{37} = 2\sqrt{37}$$

$$= \sqrt{4}$$

(84)

$$A \rightarrow (x_1, y_1) = (3, 4)$$

$$B \rightarrow (x_2, y_2) = (6, 7)$$

$$C \rightarrow (x_3, y_3) = (9, 4)$$

$$D \rightarrow (x_4, y_4) = (6, 1)$$

$$(P) + (Q) \rightarrow$$

$$AB = \sqrt{(3-6)^2 + (4-7)^2}$$

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

$$= \frac{\sqrt{9+9}}{2\sqrt{2} \times 9}$$

$$= 3\sqrt{2}$$

$$CD = \sqrt{(9-6)^2 + (4-1)^2}$$

$$= \sqrt{3^2 + 3^2}$$

$$= \frac{\sqrt{9+9}}{2\sqrt{2} \times 9}$$

$$= 3\sqrt{2}$$

$$(P) + (Q) \rightarrow = 2\sqrt{2}$$

$$AC = \sqrt{(3-9)^2 + (4-4)^2}$$

$$= \sqrt{(-6)^2 + 0^2}$$

$$= \sqrt{36+0}$$

$$= \sqrt{36}$$

$$= 6$$

$$\therefore AB = BC = CD = AD \text{ since }$$

$$AC = BD = \sqrt{36}$$

$$\therefore ABCD \text{ is a } \square$$

$$\textcircled{1} (-1, -2), (1, 0), (-1, 2), (-3, 0)$$

જીવિકા, A(-1, -2), B(1, 0) C(-1, 2) અને D(-3, 0)

$$AB = \sqrt{(-1-1)^2 + (-2-0)^2} \quad BC = \sqrt{(1+1)^2 + (0-2)^2}$$

$$= \sqrt{(-2)^2 + (2)^2} \quad = \sqrt{2^2 + (-2)^2}$$

$$= \sqrt{4+4} \quad = \sqrt{4+4}$$

$$= \sqrt{2 \times 4} \quad = \sqrt{2 \times 4}$$

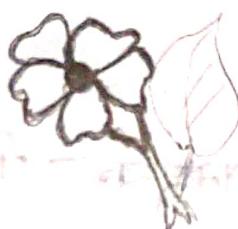
$$= 2\sqrt{2} \quad = 2\sqrt{2}$$

$$AC = \sqrt{(-1+3)^2 + (2-0)^2} \quad AD = \sqrt{(-1+3)^2 + (-2-0)^2}$$

$$= \sqrt{2^2 + 2^2} \quad = \sqrt{2^2 + (-2)^2}$$

$$= \sqrt{4+4} \quad = \sqrt{4+4}$$

$$= 2\sqrt{2} \quad = 2\sqrt{2}$$



$$AL = \sqrt{(-1+1)^2 + (2-2)^2} \quad AB = \sqrt{(-1+3)^2 + (2-0)^2}$$

$$= \sqrt{0^2 + 0^2} \quad = \sqrt{2^2 + 2^2}$$

$$= \sqrt{0+0} \quad = \sqrt{4+4}$$

$$= 0 \quad = 2\sqrt{2}$$

$$BD = \sqrt{(1+3)^2 + (0-0)^2}$$

$$= \sqrt{4^2 + 0^2}$$

$$= \sqrt{16+0}$$

$$= 4$$

ફુલની ઠાકુર દ્વારા કંપાડીએ

અને ABCD ગઢ્ય-કાણોની કૃત્તિ = 9 એકર

$$\textcircled{2} (-3, 5), (3, 1), (6, 3), (4, -4)$$

જીવિકા, A(-3, 5), B(3, 1), C(6, 3) અને D(4, -4)

$$AB = \sqrt{(-3-3)^2 + (5-1)^2}$$

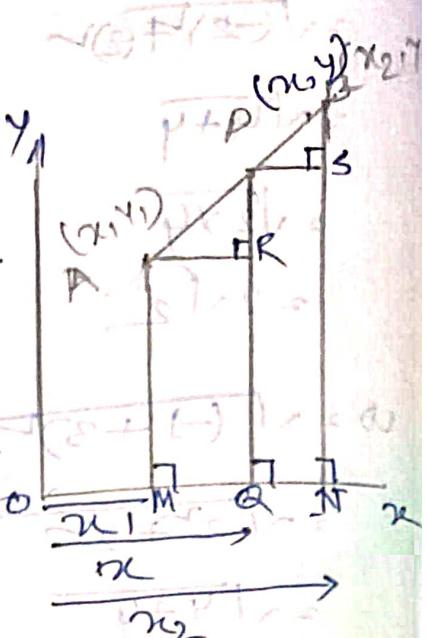
$$= \sqrt{(-6)^2 + 4^2}$$

S. দ্বিমুখি - কুমার - প্রয়োগ - করা।

Δm_1 - দ্বিমুখি নয় কারণের জন্য

A (x_1, y_1) এবং B (x_2, y_2) দ্বিমুখি - কুমার - দ্বিমুখি - কুমার - A-B

কুমার অন্তর্বর্ত - m_1, m_2 উভয়পদ্ধতি
কুমার - কুমার



P (x, y) দ্বিমুখি - কুমার - দ্বিমুখি - কুমার - কুমার

ইমীঠি - $\frac{AP}{PB} = \frac{m_1}{m_2}$

$$\Rightarrow \frac{AP}{PB} = \frac{m_1}{m_2} \quad \text{--- (1)}$$

OR এ 3পর্যবেক্ষণ - AM, PQ, BN একই দৈর্ঘ্য করা।

$AR \perp PQ$ এবং $PS \perp BN$ করা।

$\triangle ARP$ একই - $\triangle PSB$ - শর্করা -

$\angle ARP = \angle PSB$ [ইমীঠি সরোকৃতি]

$\angle RAP = \angle SPB$ [একান্তর কোন সরোকৃতি $AR \parallel PS$
অবস্থা - AB একান্তর]

$\therefore \triangle ARP \sim \triangle PSB$ [AA সরোকৃতি - কুমার]

$$\frac{AR}{PS} = \frac{RP}{SB} = \frac{AP}{PB}$$

$$\Rightarrow \frac{MQ}{QN} = \frac{PQ - QR}{BN - SN} = \frac{m_1}{m_2} \quad \text{[গুরুত্বপূর্ণ ফল - পরিষেবা]}$$

1. କେନ୍ଦ୍ରିକ ଅଳ୍ପ- ଅଳ୍ପ- ବିନ୍ଦୁ-ଟେ- ତମ- $P(n, 0)$ (84)

କେନ୍ଦ୍ରିକ ଅଳ୍ପ- $P(n, 0)$ ବିନ୍ଦୁ-ଟେ- $A(2, -5)$ ଏବଂ $B(-2, 9)$ ଏବଂ
ନିମ୍ନ ଲଙ୍ଘନ କାହିଁ- ।

$$\text{ଅଳ୍ପମତ୍ତେ, } PA = PB$$

$$PA = \sqrt{(0-n)^2 + (0-0)^2} = \sqrt{n^2}$$

$$PB = \sqrt{(0+2)^2 + (0-9)^2} = \sqrt{4+81} = \sqrt{85}$$

$$\Rightarrow \sqrt{(n-0)^2 + (0-0)^2} = \sqrt{(0+2)^2 + (0-9)^2}$$

$$\Rightarrow \sqrt{(n-0)^2} = \sqrt{(0+2)^2 + (0-9)^2}$$

$$\Rightarrow \sqrt{(n-0)^2} = \sqrt{4 + 81} = \sqrt{85}$$

$$\Rightarrow \sqrt{4 + 81} = \sqrt{85}$$

$$\Rightarrow \sqrt{(2+n)^2 + (-5-0)^2} = \sqrt{(-2-n)^2 + (9-0)^2}$$

$$\Rightarrow \sqrt{4+n^2+4n+25} = \sqrt{4+n^2+4n+81}$$

$$\Rightarrow -8n = 56$$

$$\Rightarrow n = -\frac{56}{8}$$

$$= -7$$

$$\therefore P \text{ ବିନ୍ଦୁର ଅଳ୍ପ-ଟେ- } = (-7, 0)$$

8. ନିମ୍ନ ଅଳ୍ପ, $P(2, -3)$ ଏବଂ $Q(10, y)$

$$PQ = \sqrt{(10-2)^2 + (y+3)^2} = \sqrt{144 + 6y + 9} = 10$$

$$\Rightarrow \sqrt{8^2 + y^2 + 2y \cdot 3 + 9} = 10$$

$$\Rightarrow 64 + y^2 + 6y + 9 = 100$$

$$\Rightarrow y^2 + 6y + 73 - 100 = 0$$

$$\begin{aligned}
 & \Rightarrow y^2 + (y-3)^2 - 27 = 0 \\
 & \Rightarrow y^2 + y^2 - 6y + 9 - 27 = 0 \\
 & \Rightarrow 2(y^2 - 3y - 9) = 0 \\
 & \Rightarrow (y-9)(y+3) = 0 \\
 & \Rightarrow y-9 = 0 \quad \text{or} \quad y+3=0 \\
 & \Rightarrow y=9 \quad \Rightarrow y=-3
 \end{aligned}$$

$\therefore y=9, 3$ जो $y=0$ के लिए नहीं हैं।

9. यदि $A(0, 3)$, $Q(-3, 1)$ तथा $P(5, -3)$ अतः $R(2, 6)$

$$\therefore QP = \sqrt{(5-0)^2 + (-3-1)^2} = \sqrt{5^2 + (-4)^2}$$

$$\begin{aligned}
 & = \sqrt{25 + 16} = \sqrt{(5-2)^2 + (6-1)^2} \\
 & QR = \sqrt{(2-0)^2 + (6-1)^2} = \sqrt{2^2 + 5^2} = \sqrt{25 + 4} \\
 & = \sqrt{29} \\
 & \therefore QP = QR
 \end{aligned}$$

$$\Rightarrow \sqrt{41} = \sqrt{n^2 + 25} \Rightarrow n^2 + 25 = 41$$

$$\therefore n^2 = 16$$

$$\therefore n = \pm 4$$

$$\therefore n = 4 \text{ वा } n = -4$$

$$\therefore n^2 + 25 = 4^2 + 25 = 16 + 25 = 41$$

$$\frac{OA - OM}{ON - OA} = \frac{Y - Y_1}{Y_2 - Y} = \frac{m_1}{m_2}$$

$$\frac{m_1 - m_2}{x_2 - x_1} = \frac{Y - Y_1}{Y_2 - Y} = \frac{m_1}{m_2}$$

$$\therefore \frac{m_1 - m_2}{x_2 - x_1} = \frac{m_1}{m_2} \quad , \quad \frac{Y - Y_1}{Y_2 - Y} = \frac{m_1}{m_2} \quad \text{--- (1)}$$

$$\therefore m_2 x - m_2 x_1 = m_1 x_2 - m_1 x \quad \text{--- (1) + (2)}$$

$$\therefore m_2 x + m_1 x_1 = m_1 x_2 + m_2 x_1$$

$$\therefore x(x(m_2 + m_1)) = m_1 x_2 + m_2 x_1$$

$$\therefore x = \frac{m_1 x_2 + m_2 x_1}{m_2 + m_1} = \frac{p + p_1}{p} = \frac{p + p_1}{p}$$

$$\text{But}, \quad \frac{Y - Y_1}{Y_2 - Y} = \frac{m_1}{m_2} = \frac{p_1}{p} = \frac{p_1}{p}$$

$$\therefore m_2 Y - m_2 Y_1 = m_1 Y_2 - m_1 Y$$

$$\therefore m_2 Y + m_1 Y_1 = m_1 Y_2 + m_2 Y_1$$

$$\therefore Y(m_2 + m_1) = m_1 Y_2 + m_2 Y_1$$

$$\therefore Y = \frac{m_1 Y_2 + m_2 Y_1}{m_2 + m_1} \quad \text{--- (3)}$$

\therefore The required point is $(\frac{m_1 x_2 + m_2 x_1}{m_2 + m_1}, \frac{m_1 Y_2 + m_2 Y_1}{m_2 + m_1})$

(Intersection point of $m_1 x + p_1 = 0$ and $m_2 x + p_2 = 0$)

\therefore Required point is $(\frac{p_1 + p_2}{m_1 + m_2}, \frac{p_1 m_2 - p_2 m_1}{m_1 + m_2})$

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Required point is $(\frac{p_1 + p_2}{m_1 + m_2}, \frac{p_1 m_2 - p_2 m_1}{m_1 + m_2})$

4) दिया

AC का मध्य बिन्दु = BD का मध्य बिन्दु

$$\Rightarrow \left(\frac{6+9}{2}, \frac{3+4}{2} \right) = \left(\frac{8+p}{2}, \frac{2+3}{2} \right)$$

$$\Rightarrow \left(\frac{15}{2}, \frac{7}{2} \right) = \left(\frac{8+p}{2}, \frac{5}{2} \right)$$

$$\Rightarrow \frac{15}{2} = \frac{8+p}{2}$$

$$\Rightarrow 15 = 8+p$$

$$\Rightarrow 15-8=p$$

$$\Rightarrow p=7$$

$\therefore p = 7$ (संतुष्टि विनायक)

$$\left(\frac{8-14(-3)}{2}, \frac{(2)1+(4)-5}{2} \right) =$$

1.1 यहाँ - जल - $(P(\text{लाल}) - \frac{P+P}{2}) = (-, +)$ तथा - $B(4, -3)$

मध्य अन्तरीक्ष - अवश्यकता - m_1, m_2 विनायक - अनुप्रिक्षर
अविभूत /

$$\therefore x = \frac{m_1 P_1 + m_2 P_2}{m_1 + m_2} = \frac{2(4) + 1(-3)}{2+1} = \frac{8-3}{3} = \frac{5}{3}$$

$$= \frac{5}{3} = \frac{m_1 P_2 + m_2 P_1}{m_1 + m_2} = \frac{2(-3) + 1(4)}{2+1} = \frac{-6+4}{3} = \frac{-2}{3}$$

$$= \frac{1}{3} = \frac{\frac{m_1 P_1 + m_2 P_2}{m_1 + m_2}}{\frac{m_1 P_2 + m_2 P_1}{m_1 + m_2}} = \frac{5}{-2} = \frac{5}{2}$$

\therefore विनायक अविभूत - (1, 5)

(92)

2. दिया - त्रिभुज ABC में अन्तर्मिश्रितीय BC का सेन्ट्रलरेखा - विभाजक

$$P \text{ एवं } Q \left(\frac{1}{2}, \frac{1}{2} \right) = \left(\frac{-2+4}{2}, \frac{-3+2}{2} \right) = (-1, -\frac{1}{2})$$

$$\therefore PA = PR = QB$$

$$\therefore P \text{ का } AB \text{ पर } 1:2 \text{ अनुपात } \text{ में } (-3) \text{ से विभाजित}$$

$$\therefore P \text{ का समीकरण } = \left(\frac{-2(-3)+2(-4)}{1+2}, \frac{1(-3)+2(-2)}{1+2} \right) = \left(\frac{-6-8}{3}, \frac{-3-4}{3} \right) = \left(\frac{-14}{3}, -\frac{7}{3} \right)$$

$$\therefore \left(\frac{-2+8}{3}, \frac{-3+2}{3} \right) = (-1, -\frac{1}{3})$$

$$\therefore \left(\frac{0}{3}, \frac{0}{3} \right) = (0, 0)$$

$$\therefore (0, -\frac{1}{3})$$

$$\text{सेन्ट्रलरेखा का समीकरण } = \left(\frac{m_1 y_2 + m_2 y_1}{m_1 + m_2}, \frac{m_1 x_2 + m_2 x_1}{m_1 + m_2} \right)$$

$$= \left(\frac{2(-1) + 1(4)}{2+1}, \frac{2(-3) + 1(-2)}{2+1} \right)$$

$$\therefore \text{सेन्ट्रलरेखा } (x, y) = A \left(\frac{-4+4}{3}, \frac{-6-2}{3} \right) = A(-1, -2)$$

$$\text{सेन्ट्रलरेखा } = \frac{1}{2} \left(\frac{0}{3}, -\frac{1}{3} \right) = \frac{0+0+0-1}{2(0+1)} = 0$$

$$\therefore \text{सेन्ट्रलरेखा } (-1, 0) \text{ विभाजित } A(-3, 16) \text{ एवं } B(6, -6)$$

$$\therefore m_1 : m_2 = 16 : -6 = 8 : 3$$

$$\therefore P(m, y) = \frac{m_1 y_2 + m_2 y_1}{m_1 + m_2}, \quad \frac{m_1 x_2 + m_2 x_1}{m_1 + m_2}$$

$$\Rightarrow -1 = \frac{m_1 \times (-3) + m_2 (4)}{m_1 + m_2}$$

$$\Rightarrow -1 = \frac{6m_1 - 3m_2}{m_1 + m_2}$$

$$\Rightarrow -m_1 - m_2 = 6m_1 - 3m_2$$

$$\Rightarrow -m_1 - 6m_1 = -3m_2 + m_2$$

$$\Rightarrow -7m_1 = 2m_2$$

$$\Rightarrow 7m_1 = 2m_2$$

$$\Rightarrow \frac{m_1}{m_2} = \frac{2}{7}$$

$$\Rightarrow m_1 : m_2 = 2 : 7$$

$$(x, y) \in \left(-\frac{4}{5}, -\frac{1}{2}\right) \times \left(-\frac{1}{2}, \frac{1}{2}\right)$$

5. ଏଥାରେ ବିନ୍ଦୁ - କ୍ଷେତ୍ରର ଅଧିକାରୀ - $(n, 0)$

ବିନ୍ଦୁ - $P(n, 0)$ ବିନ୍ଦୁମାତ୍ର $SAC(1, -5)$, ଅର୍ଥ - $B(-4, 5)$

ବିନ୍ଦୁ - $m_1 : m_2$ ଗୁଣାକାର - ଅନ୍ତିମରେ କରିବାକୁ

$$\therefore P(n, 0) = \left(\frac{m_1 x_2 + m_2 x_1}{m_1 + m_2}, \frac{m_1 y_2 + m_2 y_1}{m_1 + m_2} \right)$$

$$\Rightarrow P(n, 0) = \left(\frac{m_1(-4) + m_2(1)}{m_1 + m_2}, \frac{m_1(5) + m_2(-5)}{m_1 + m_2} \right)$$

$$\Rightarrow x = \frac{-4m_1 + m_2}{m_1 + m_2} \quad \text{এবং } y = \frac{5m_1 - 5m_2}{m_1 + m_2}$$

$$\Rightarrow 5m_1 - 5m_2 = 0$$

$$\Rightarrow 5m_1 = 5m_2 \quad \text{বିନ୍ଦୁ }$$

$$\Rightarrow \frac{m_1}{m_2} = \frac{1}{1}$$

$$\Rightarrow \frac{m_1}{m_2} = \frac{1}{1} \quad \text{କାହାରେ }$$

$$\Rightarrow m_1 : m_2 = 1 : 1$$

$$\text{ଉଠିବାରେ, } n = \frac{-4m_1 + m_2}{m_1 + m_2}$$

$$= \frac{-4x_1 + m_2}{1 + m_2}$$

$$= \frac{-4+1}{2}$$

$$= -\frac{3}{2}$$

$$\therefore \text{ବିନ୍ଦୁ - କ୍ଷେତ୍ରର ଅଧିକାରୀ } (-\frac{3}{2}, 0)$$

95

6.

ଅର୍ଦ୍ଧ-ତାତ୍ତ୍ଵିକ ପଦ୍ଧତି-ମଧ୍ୟରେ ଏହା-କୌଣସି-ପରିପାଳନ
କାହାରୁ ଆପଣିରେ କଥା- /

∴ AC କାହାରୁ ବିଭିନ୍ନ କାହାରୁ = BD କାହାରୁ ବିଭିନ୍ନ କାହାରୁ

$$\Rightarrow \left(\frac{1+x}{2}, \frac{y+6}{2} \right) = \left(\frac{4+y}{2}, \frac{y+5}{2} \right)$$

$$\Rightarrow \left(\frac{1+x}{2}, \frac{y+6}{2} \right) = \left(\frac{7}{2}, \frac{y+5}{2} \right)$$

$$\Rightarrow \left(\frac{1+x}{2}, 4 \right) = \left(\frac{7}{2}, \frac{y+5}{2} \right)$$

$$\Rightarrow \frac{1+x}{2} = \frac{7}{2} \quad \frac{y+5}{2} = \frac{y+5}{2}$$

$$\Rightarrow 1+x = 7 \quad y+5 = 8$$

$$\Rightarrow x = 7 - 1 \quad y = 8 - 5$$

$$\Rightarrow x = 6 \quad y = 3$$

7. ଦେଖିବାକୁ ଏହାରେ ଏହାରୁ ଏହାରୁ ଏହାରୁ - f₂ → f₃(m, y)

AB ଲଙ୍ଘନକୁ ଏହାରୁ -

$$\Rightarrow (2, 3) = \left(\frac{x_1+m_2}{2}, \frac{y_1+y_2}{2} \right)$$

$$\Rightarrow 2 = \frac{x_1+m_2}{2}, \quad 3 = \frac{y_1+y_2}{2}$$

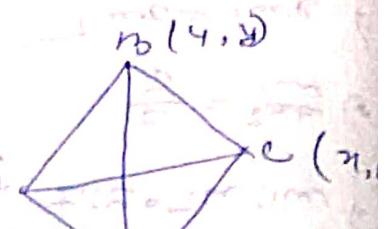
$$\Rightarrow 2 = \frac{m_1+1}{2}$$

$$\Rightarrow m_1+1 = 4$$

$$\Rightarrow m_1 = 4 - 1$$

$$\Rightarrow m_1 = 3$$

∴ ଫଳ-ମୂଳ-କୌଣସି (3, -10)



8. $PQ = 3QR$, $AP = \frac{3}{4}AB$

$$\Rightarrow 7AP = 3(AP + PB) \quad \text{(Reason: } P \text{ is between } A \text{ and } B)$$

$$\Rightarrow 7AP = 3AP + 3PB \quad \text{(Reason: } P \text{ is between } A \text{ and } B)$$

$$\Rightarrow 4AP = 3PB$$

$$\Rightarrow \frac{AP}{PB} = \frac{3}{4}$$

$$\Rightarrow AP : PB = 3 : 4$$

∴ P is $\frac{3}{7}$ of AB or $\frac{3}{7}$ of PB (Point P divides PB)

$$\therefore P(m_1, y) \left(\frac{m_1x_2 + m_2x_1}{m_1 + m_2}, \frac{m_1y_2 + m_2y_1}{m_1 + m_2} \right)$$

$$\left(\frac{\beta(2) + 4(-2)}{3+4}, \frac{3(-4) + 4(-2)}{3+4} \right)$$

$$= \frac{6 - 8}{7}, \frac{-12 - 8}{7}$$

$$= \left(\frac{-2}{7}, \frac{-20}{7} \right)$$

$$\therefore P \text{ is } \left(-\frac{2}{7}, -\frac{20}{7} \right)$$

9. Q is $\frac{1}{3}$ of AB or $\frac{1}{3}$ of PB (Point Q divides PB)

$$AP = PQ = QR = RB$$

$$PQ = AB \text{ or } 1 : 3 \text{ of } PB \text{ (Point } Q \text{ divides } PB)$$

$$\therefore P \text{ is } \left(\frac{1(2) + 3(2)}{1+3}, \frac{1(8) + 3(2)}{1+3} \right)$$

$$= \left(\frac{2+6}{4}, \frac{8+6}{4} \right)$$

$$= \left(\frac{4}{2}, \frac{14}{4} \right)$$

$$= (-1, \frac{3}{2})$$

\Rightarrow (2) AB का $\vec{z} = 2:2$ अनुपात ज्ञानित है।

$$\therefore \text{रेखा का समीकरण} = \left(\frac{2(2)+2(-2)}{2+2}, \frac{2(8)+2(2)}{2+2} \right)$$

$$= \left(\frac{4-4}{4}, \frac{16+4}{4} \right) \quad \text{AEP = 944 से}$$

$$= \left(\frac{0}{4}, \frac{20}{4} \right) \quad \text{OEP = 871 से}$$

(स्थिरांक $= (0, 5)$ का उपयोग करके)

$R(2) - AB$ का अनुपात $3:1$ अनुपात है।

$$\therefore R$$
 का समीकरण $= \left(\frac{3(2)+1(-2)}{3+1}, \frac{3(8)+1(2)}{3+1} \right)$

$$= \left(\frac{6-2}{4}, \frac{24+2}{4} \right)$$

$$= \left(\frac{4}{4}, \frac{-26}{4} \right)$$

$$= (1, -\frac{13}{2})$$

लाइन का समीकरण $-x + 2y + 13 = 0$ है।

$$AC = \sqrt{(2-3)^2 + (4-6)^2}$$

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

$$= \sqrt{1 + 4} = \sqrt{5}$$

$$= \sqrt{2 \times 16}$$

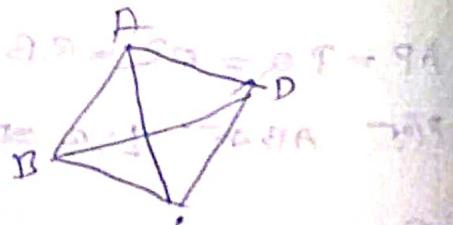
$$= 4\sqrt{2}$$

$$BD = \sqrt{(-2-4)^2 + (-1-5)^2}$$

$$= \sqrt{(-6)^2 + (-6)^2}$$

$$= \sqrt{36+36} = \sqrt{72}$$

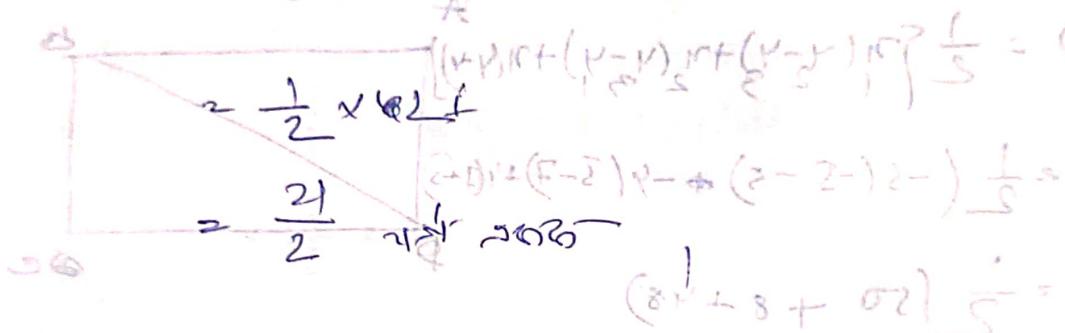
$$= \sqrt{2 \times 36} = 6\sqrt{2}$$



$$\text{Q. } \textcircled{1} (2, 3), (-1, 0), (2, -4)$$

ສົກລະນະ $A(2, 3), B(-1, 0), C(2, -4)$

$$\begin{aligned} \text{ar}(ABC) &= \frac{1}{2} \left[y_1(y_2 - y_3) + y_2(y_3 - y_1) + y_3(y_1 - y_2) \right] \\ &= \frac{1}{2} [2(0 - 4) + -1(-4 - 3) + 2(3 - 0)] \\ &= \frac{1}{2} (8 + 7 + 6) = 10.5 \end{aligned}$$



$$\text{Q. } \textcircled{1} (-5, -1), (3, -5), (5, 2)$$

ສົກລະນະ $A(-5, -1), B(3, -5), C(5, 2)$

$$\begin{aligned} \text{ar}(ABC) &= \frac{1}{2} \left[y_1(y_2 - y_3) + y_2(y_3 - y_1) + y_3(y_1 - y_2) \right] \\ &= \frac{1}{2} [-5(-5 - 2) + 3(2 + 5) + 5(-1 + 5)] \\ &= \frac{1}{2} (35 + 21 + 20) = 32 \end{aligned}$$

$$= \frac{1}{2} \times 32 = 16$$

$$= 16 \text{ ລ້າ } \text{ ຂວາງ }$$

$$\text{Q. } \textcircled{1} (7, -2), (0, 1), (3, 1)$$

ສົກລະນະ $A(7, -2), B(0, 1), C(3, 1)$

$$\frac{1}{2} \left(n_1 \left(\frac{y-y_1}{2} \right) + n_2 \left(\frac{y-y_2}{2} \right) + n_3 \left(\frac{y-y_3}{2} \right) \right) = \text{or}(A|B|C)$$

$$\Rightarrow \frac{1}{2} \left(7 \cdot (4+k) + 5 \cdot (k+2) + 3 \cdot (2+k) \right) = 0 \quad \text{or} \quad 7k+28 = 0$$

$$\Rightarrow \frac{1}{2} (7 - 7k + 5k + 10 + k) = 0 \quad \text{or} \quad -k + 17 = 0$$

$$\Rightarrow \frac{1}{2} (-2k + 18) = 0 \quad \left(\frac{1+1-(-2+0)}{2} = 0 \right) \quad \text{or} \quad -k + 9 = 0$$

$$\Rightarrow -2k + 18 = 0$$

$$\Rightarrow -2k = -18$$

$$\Rightarrow 2k = 18$$

$$\Rightarrow k = \frac{18}{2}$$

$$\Rightarrow k = 9$$

$$\therefore k \in \text{NAT} := 9 \quad \left(\frac{1}{9} < \frac{0}{9} \right) =$$

$$\textcircled{11} \quad (8, 1), (k, -4), \& (2, -5) \quad (1, 0) =$$

అందుల్లో, $\overrightarrow{AB} = A(8, 1), \overrightarrow{BC} = B(k, -4)$ అండ $\overrightarrow{CA} = C(2, -5)$

కొన్ఱోల్లా దీన్ని $\left(\frac{8+k+2}{3}, \frac{1+(-4)+(-5)}{3} \right) = (-1, -4)$ కావచే కొన్ఱోల్లా దీన్ని $(-1, -4)$

$$\frac{1}{3} \left((8+y_2) + k(y_2-y_1) + 2(y_1-y) \right) = \text{or} \quad (A|B|C)$$

$$\Rightarrow \frac{1}{3} \left[8(-4+k) + k(-5-1) + 2(1+4) \right] = 0$$

$$\Rightarrow \frac{1}{3} (8 + -5k - k + 10) = 0 \quad \left(\frac{0+8+0}{3} = 0 \right)$$

$$\Rightarrow \frac{1}{3} (-6k + 18) = 0$$

$$\Rightarrow -6k + 18 = 0$$

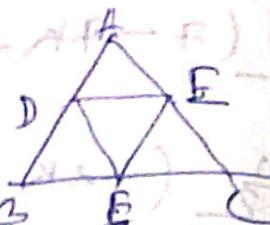
$$\Rightarrow -6k = -18$$

$$\Rightarrow k = 3 \quad \therefore k \in \text{NAT} = 3$$

3. शीर्षों का मूलांकन करें - विन्दु (0, 2), A(0, -1), B(2, 0)

यद्यपि C(0, 3) तथा D, E ऐसे हैं कि $\triangle ABC \sim \triangle ADE$

तो A का लम्बाई $|O| = (1 + 0) + 2 + 1 + 1 = 5$



$$\therefore D \text{ का मूलांकन } = \left(\frac{0+2}{2}, \frac{-1+1}{2} \right)$$

$$= \left(\frac{2}{2}, \frac{0}{2} \right)$$

$$= (1, 0)$$

$$E \text{ का मूलांकन } = \left(\frac{0+0}{2}, \frac{-1+3}{2} \right)$$

$$= \left(\frac{0}{2}, \frac{2}{2} \right)$$

$$= (0, 1)$$

$$F \text{ का मूलांकन } = \left(\frac{2+0}{2}, \frac{1+3}{2} \right)$$

(2-0) विकल्प (0-2) विकल्प (1-2) विकल्प

$$= \left(\frac{2}{2}, \frac{4}{2} \right)$$

$$= (1, 2)$$

$$\therefore \text{Area}(ADE) = \frac{1}{2} \left\{ \left(\frac{1}{2} - \frac{1}{2} \right) x + \left(\frac{1}{2} - \frac{1}{2} \right) x + \left(\frac{1}{2} - \frac{1}{2} \right) x \right\}$$

$$= \frac{1}{2} \left[\left(\frac{1}{2} - \frac{1}{2} \right) x + \left(\frac{1}{2} - \frac{1}{2} \right) x + \left(\frac{1}{2} - \frac{1}{2} \right) x \right]$$

$$= \frac{1}{2} (0 + 0 + 0)$$

$$= 0$$

$$= \frac{0}{2}$$

$$= 0$$

$$\begin{aligned}
 \text{ar}(\triangle DEF) &= \frac{1}{2} \left[n_1(y_2 - y_3) + n_2(y_3 - y_1) + n_3(y_1 - y_2) \right] \\
 &\Rightarrow \frac{1}{2} [1(1+2) + 0(2+0) + 2(0-1)] \\
 &= \frac{1}{2} (2-0-2) \\
 &= \frac{1}{2} (0-0) \\
 &= \frac{1}{2} \times 2 \\
 &= \frac{2}{2} \\
 &= 1
 \end{aligned}$$

6. अद्वितीय त्रिभुज का क्षेत्रफल $P(-4, -2), M(-3, -3)$

$$\begin{aligned}
 C(3, -2) \text{ और } D(2, 3) \\
 \text{ar}(AMC) &= \frac{1}{2} \left[n_1(y_2 - y_3) + n_2(y_3 - y_1) + n_3(y_1 - y_2) \right] \\
 &= \frac{1}{2} [-4(-5+2) - 3(-2+2) + 3(2+5)] \\
 &= \frac{1}{2} (+12 - 0 + 9)
 \end{aligned}$$

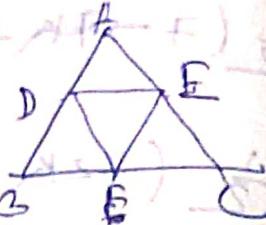
$$\begin{aligned}
 &= \frac{1}{2} (21)
 \end{aligned}$$

$$\begin{aligned}
 \text{since } \text{ar}(ACD) &= \frac{1}{2} \left\{ -4(-2-3) + 3(3+2) + 2(-2+2) \right\} \\
 &= \frac{1}{2} (-20 + 15 + 0)
 \end{aligned}$$

3. ସିରି ଲୁଗ ମୁଦ୍ରାର କୋଣ - କିନ୍ତୁ $(0, 0) - A(0, -1), B(2, 1)$

ଏହାର $C(0, 3)$ ଅଥବା D, E କିମ୍ବା F କିମ୍ବା କିମ୍ବା

କେବଳ ଏହି ପରିମାଣ । $O = (x - 0)^2 + (y - 0)^2 + (x - 2)^2 + (y - 1)^2$



$$\therefore D \text{ ମଧ୍ୟବିନ୍ଦୁ } = \left(\frac{0+2}{2}, \frac{-1+1}{2} \right)$$

$$= \left(\frac{2}{2}, \frac{0}{2} \right)$$

$$= (1, 0)$$

$$E \text{ ମଧ୍ୟବିନ୍ଦୁ } = \left(\frac{0+0}{2}, \frac{-1+3}{2} \right)$$

$$= \left(\frac{0}{2}, \frac{2}{2} \right)$$

$$= (0, 1)$$

$$F \text{ ମଧ୍ୟବିନ୍ଦୁ } = \left(\frac{2+0}{2}, \frac{1+3}{2} \right)$$

$(2-0)^2 + (3-1)^2 = (2-0)^2 + (3-1)^2$ କିମ୍ବା $(2-0)^2 + (3-1)^2$ କିମ୍ବା

$$= \left(\frac{2}{2}, \frac{2}{2} \right)$$

$$= (-1, 1)$$

$$\therefore \Delta ABC \text{ କେନ୍ଦ୍ରବିନ୍ଦୁ } = \frac{1}{2} \left[\begin{matrix} 1 & 2 & 3 \\ 2 & 3 & 1 \\ 3 & 1 & 2 \end{matrix} \right] [(y-x)x + (z-y)y + (x-z)z]$$

$$O = [(0+1) \cdot 2 + (1-2) \cdot 1 + (2+1) \cdot 0] \cdot \frac{1}{2}$$

$$= \frac{1}{2} (0 + 8 - 8 + 0)$$

$$O = (8 + 0) \cdot \frac{1}{2}$$

$$= \frac{8}{2}$$

$$= 4 \text{ ଏକାଙ୍କି }$$