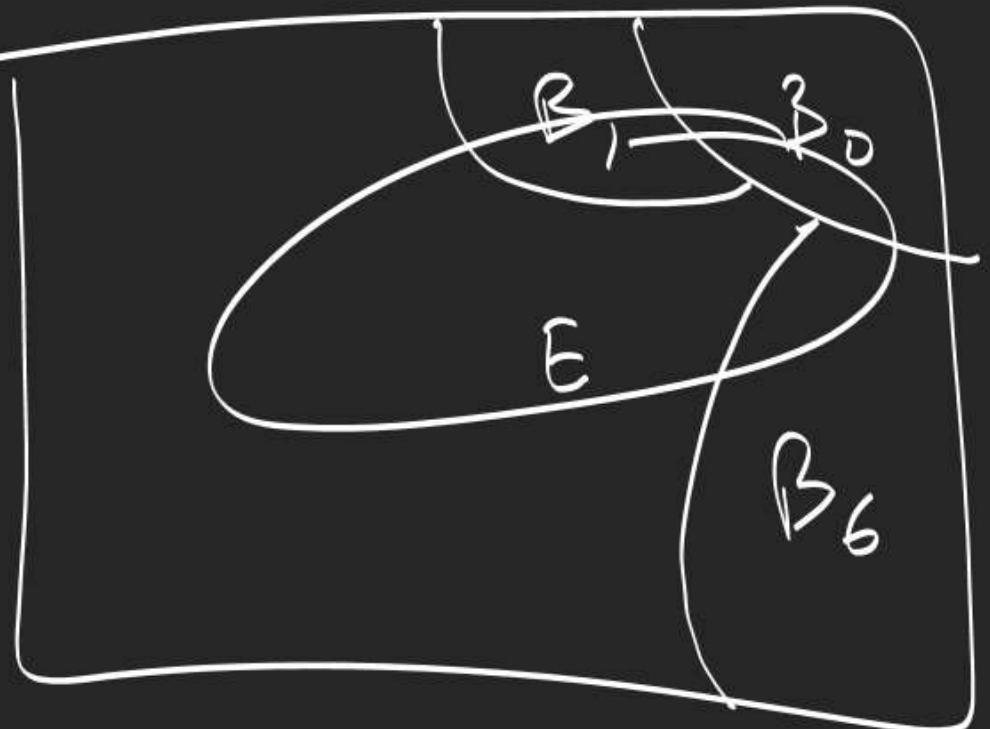


1.

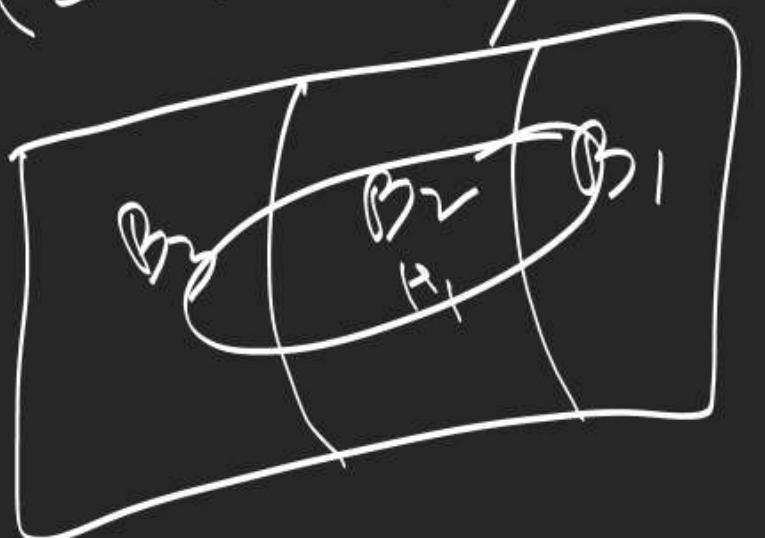
$$P(\beta_3/E) = \frac{\frac{1}{7} \times \frac{3\beta_3}{6\beta_3}}{\frac{1}{7} \left( 0 + 0 + 0 + \frac{3\beta_3}{6\beta_3} + \frac{4\beta_3}{6\beta_3} + \frac{5\beta_3}{6\beta_3} + \frac{6\beta_3}{6\beta_3} \right)}$$



Q.  $H_2 \rightarrow$  2<sup>nd</sup> toss is Head

$$P(H_2) = \sum_{i=1}^3 P(H_2 \cap (B_i/H_1)) = \frac{\frac{1}{3} \times \frac{1}{3}}{\frac{1}{3} \times \left(\frac{1}{3} + \frac{2}{3} + \frac{3}{4}\right)} \times \frac{\frac{1}{3} + \frac{1}{3} \times \frac{2}{3}}{\frac{1}{3} \left(\frac{1}{3} + \frac{2}{3} + \frac{3}{4}\right)} * \frac{2}{3} +$$

$$\frac{\frac{1}{3} \times \left(\left(\frac{1}{3}\right)^2 + \left(\frac{2}{3}\right)^2 + \left(\frac{3}{4}\right)^2\right)}{\frac{1}{3} \times \left(\frac{1}{3} + \frac{2}{3} + \frac{3}{4}\right)} = \frac{23}{36} . \quad P(B_3/H_1) = \frac{\frac{1}{3} \times \frac{3}{4}}{\frac{1}{3} \left(\frac{1}{3} + \frac{2}{3} + \frac{3}{4}\right)}$$



$$P(B_1/A_1) = \frac{\frac{1}{3} \times \frac{1}{3}}{\frac{1}{3} \left(\frac{1}{3} + \frac{2}{3} + \frac{3}{4}\right)}$$

$$P(B_2/A_1) = \frac{\frac{1}{3} \times \frac{2}{3}}{\frac{1}{3} \left(\frac{1}{3} + \frac{2}{3} + \frac{3}{4}\right)}$$

3.

$6R, 4W$

↓ 4 balls drawn

at least two white

$$\frac{^4C_2^6 C_2}{^{10}C_4} \times \frac{2}{6} + \frac{^4C_3^6 C_1}{^{10}C_4} \times \frac{1}{6} + \frac{^4C_4}{^{10}C_4} \times 0$$

↓ one more ball is drawn =  $\frac{34}{115}$   
white.

$\textcircled{1} \quad P(R_1, R_2) = 1 - \frac{1}{3} \times \frac{2}{5} \times \frac{3}{5} = \frac{9}{10}$

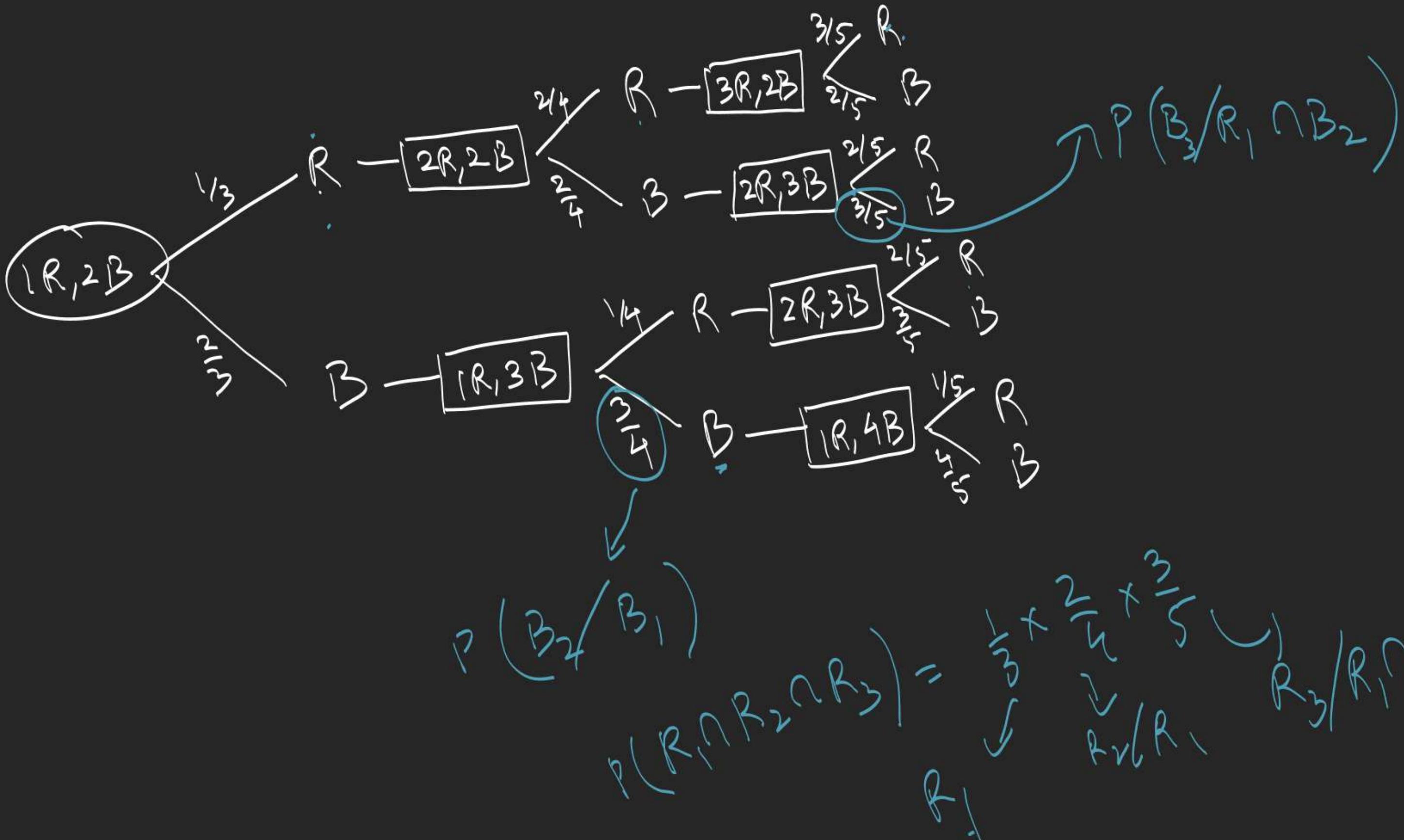
$P(R_1) \quad \downarrow \quad P(R_2 | R_1)$

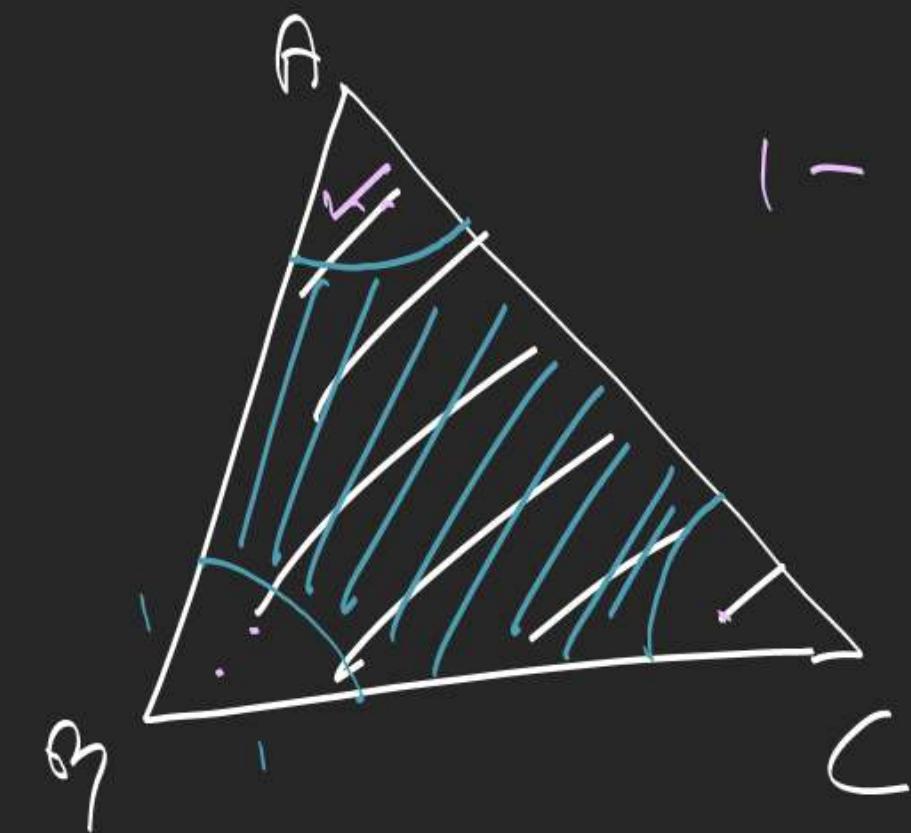
$P(R_3 | R_1 \cap R_2)$

$\textcircled{2} \quad P(BRR \text{ or } RBR \text{ or } RRB)$

$$= \frac{\frac{2}{3} \times \frac{1}{4} \times \frac{2}{5}}{\frac{1}{3} \times \frac{2}{4} \times \frac{3}{5} + \frac{2}{3} \times \frac{2}{4} \times \frac{2}{5} + \frac{1}{3} \times \frac{2}{4} \times \frac{2}{5}} = \frac{1}{5}$$

$\textcircled{3} \quad \frac{\frac{1}{3} \times \frac{2}{4} \times \frac{3}{5}}{\frac{1}{3} \times \frac{2}{4} \times \frac{3}{5} + \frac{2}{3} \times \frac{3}{4} \times \frac{4}{5}} = \frac{1}{5}$

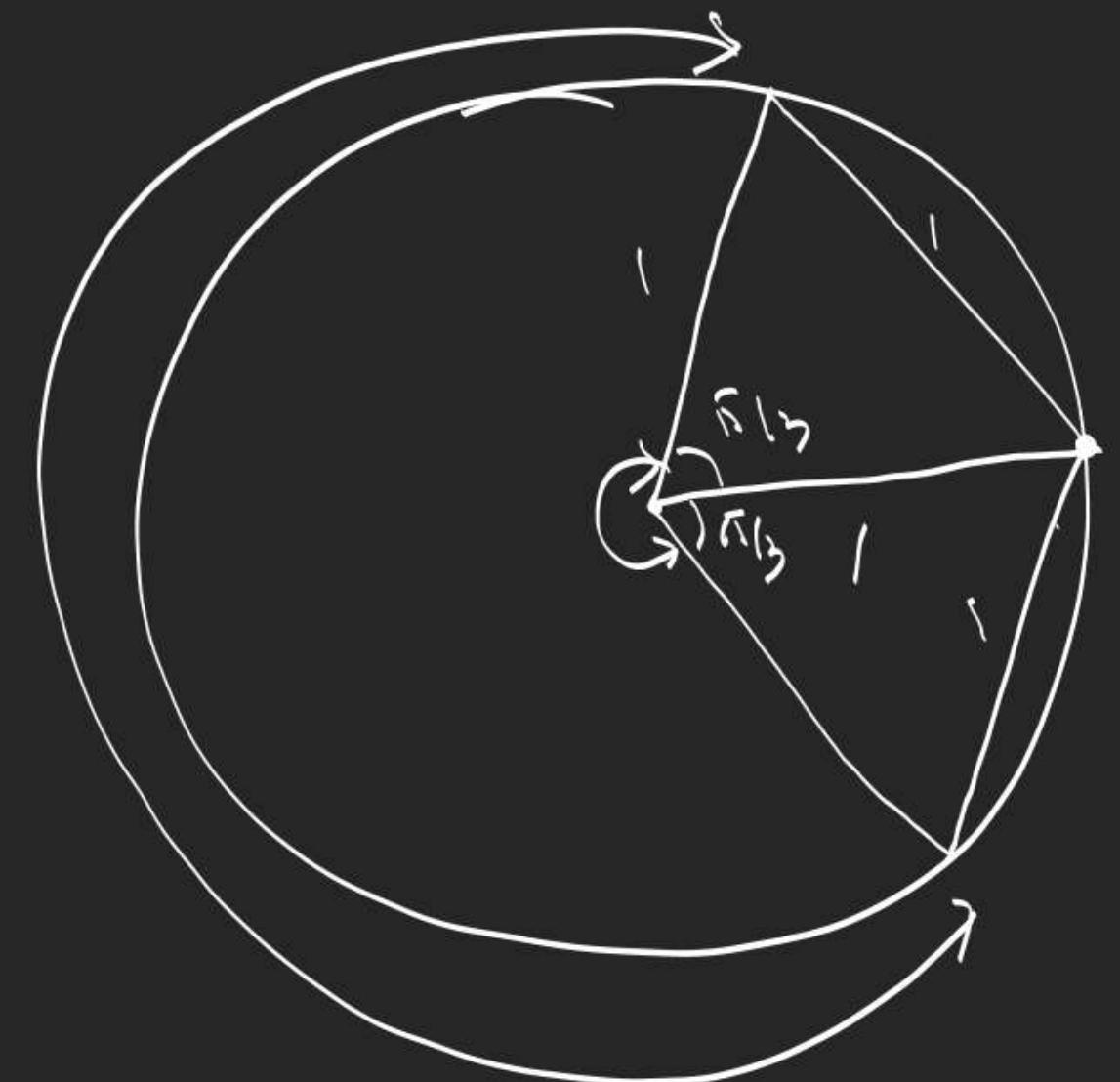


5.

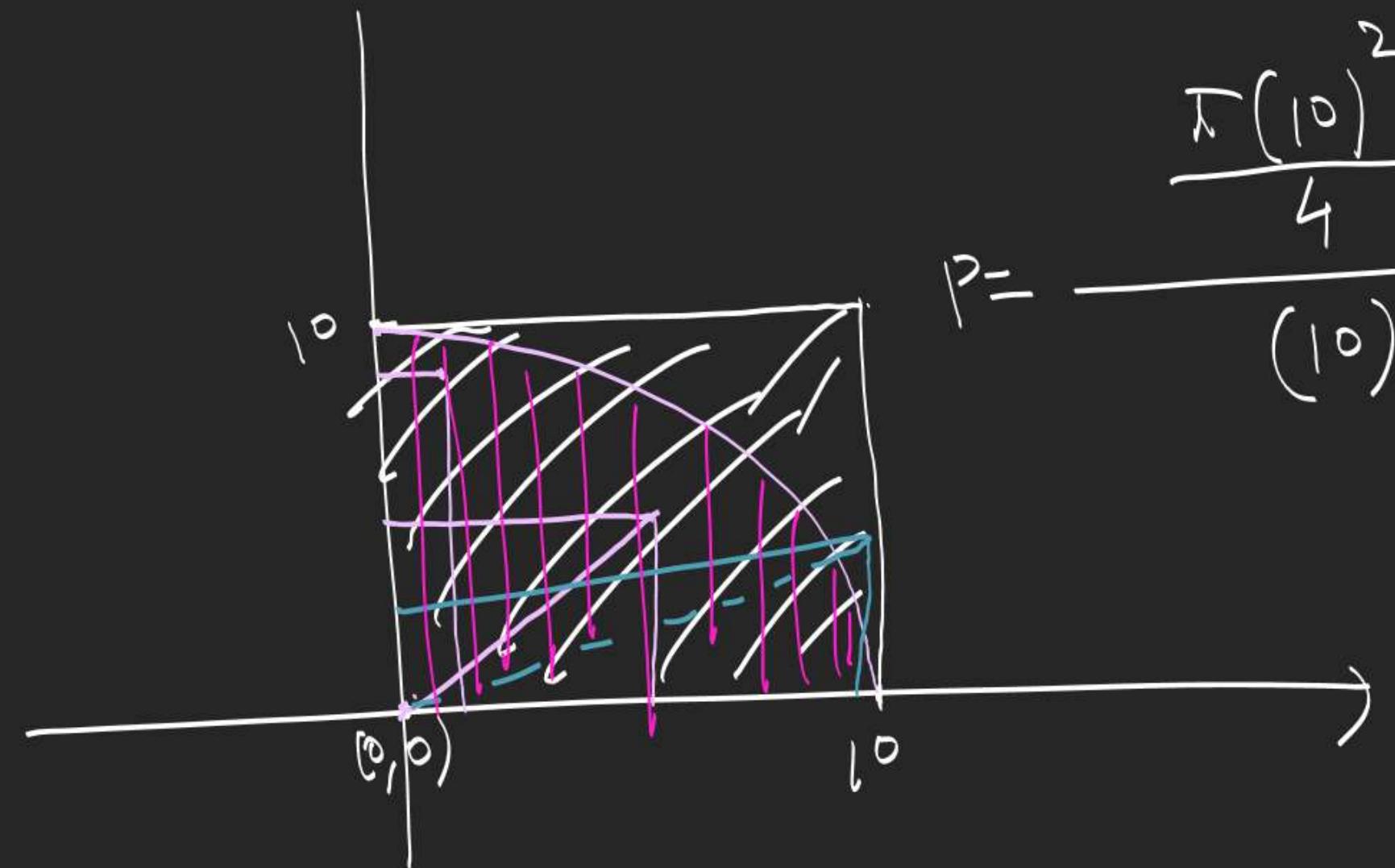
$$1 - \frac{\frac{1}{2} (1)^2 \frac{\sqrt{3}}{3} \times 3}{\frac{\sqrt{3}}{4} (3)^2}$$

DPP-I (Prob.)  
Ex-I (DE)

6.



$$\rho = \frac{\frac{2\pi}{3}}{2\pi} = \boxed{\frac{2}{3}}$$

7.

$$\text{P} = \frac{\pi(10)^2}{4} = \frac{\pi}{4}$$