

13

Discrete Distribution Random Variable

C



$$X(HHH) = 3$$

$$X(HHT) = 2$$

$$X(HTH) = 2$$

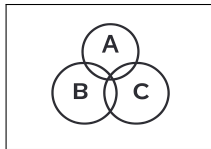
$$X(THH) = 2$$

$$X(HTT) = 1$$

$$X(THT) = 1$$

$$X(TTH) = 1$$

$$X(TTT) = 0$$



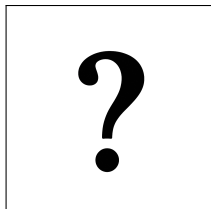
$$X : \Omega \rightarrow 0, 1, 2, 3$$

$$P(X = 0) = \frac{1}{8}$$

$$P(X = 1) = \frac{3}{8}$$

$$P(X = 2) = \frac{3}{8}$$

$$P(X = 3) = \frac{1}{8}$$



$$P(X = 0) = 0.40$$

$$P(X = 10) = 0.30$$

$$P(X = 20) = 0.15$$

$$P(X = 50) = 0.10$$

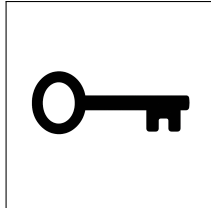
$$P(X = 100) = 0.05$$

$$P(X < 50) = ?$$

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$$P(X = 0) = 0.40$$

$$P(X = 10) = 0.30$$

$$P(X = 20) = 0.15$$

$$P(X = 50) = 0.10$$

$$P(X = 100) = 0.05$$

$$P(X < 50) = ?$$

$$x = 0, 10, 20$$

$$\begin{aligned} P(X < 50) &= P(X = 0) + P(X = 10) + P(X = 20) = \\ 0.4 + 0.3 + 0.15 &= 0.85 \end{aligned}$$