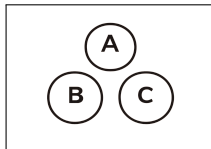


15 Discrete Distribution Expected Value Variable

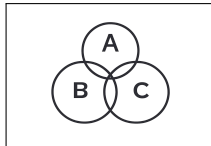
H



$$X = \{1, 2, 3, 4, 5, 6\}$$

$$P(1) = P(2) = P(3) = P(4) = P(5) = P(6) = \frac{1}{6}$$

$$E[X] = ?$$



$$E[X] = \sum xP(X = x)$$

$$E[X] = \frac{1}{6}(1 + 2 + 3 + 4 + 5 + 6)$$

$$E[X] = \frac{1}{6}(21)$$

$$E[X] = \frac{21}{6}$$

$$E[X] = 3.5$$



$$|U| = \binom{12}{3} = \frac{12 \times 11 \times 10}{3 \times 2 \times 1} = 220$$

$$P(X = 99) = \frac{1}{220}$$

$$P(X = -1) = \frac{219}{220}$$

$$E(X) = ?$$

15 Discrete Distribution Expected Value Variable

H



$$|U| = \binom{12}{3} = \frac{12 \times 11 \times 10}{3 \times 2 \times 1} = 220$$
$$P(X = 99) = \frac{1}{220}$$
$$P(X = -1) = \frac{219}{220}$$
$$E(X) = ?$$

$$E(X) = 99 \times \frac{1}{220} + (-1) \times \frac{219}{220}$$
$$E(X) = \frac{99 - 219}{220} = \frac{-120}{220} = -\frac{6}{11} \approx -0.54$$