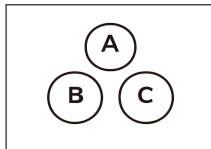


16 Discrete Distribution Expected Value Function

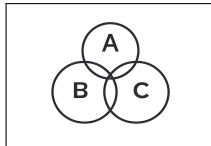
D



$$Y = 20 - 2X$$

$$E(X) = 6$$

$$E(Y) = ?$$

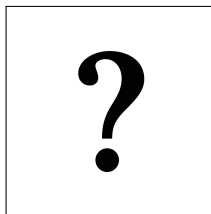


$$E(Y) = E(20 - 2X)$$

$$E(20 - 2X) = E(20) - 2E(X)$$

$$E(20) = 20$$

$$E(Y) = 20 - 2(6) = 20 - 12 = 8$$



$$P(X = -1) = 0.20$$

$$P(X = 0) = 0.30$$

$$P(X = 0.5) = 0.10$$

$$P(X = 4) = 0.30$$

$$E(p(X)) = ?$$

16 Discrete Distribution Expected Value Function

D



$$P(X = -1) = 0.20$$

$$P(X = 0) = 0.30$$

$$P(X = 0.5) = 0.10$$

$$P(X = 4) = 0.30$$

$$E(p(X)) = ?$$

$$E(p(X)) = \sum_x p(x) \cdot p(x) = \sum_x [p(x)]^2$$

$$E(p(X)) = (0.2)^2 + (0.3)^2 + (0.1)^2 + (0.3)^2$$

$$E(p(X)) = 0.04 + 0.09 + 0.01 + 0.09 = \boxed{0.23}$$