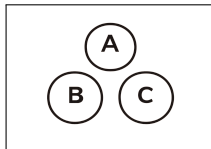


16 Discrete Distribution Expected Value Function

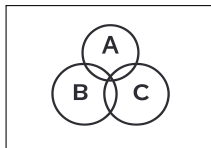
H



$$Y = 20 - 2X$$

$$E(X) = 6$$

$$E(Y) = ?$$

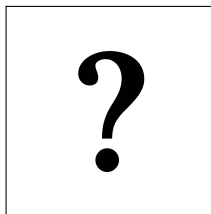


$$E(Y) = E(20 - 2X)$$

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

$$E(20) = 20$$

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



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

$$P(X = 1) = 0.40$$

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

$$E(X^2) - [E(X)]^2 = ?$$

16 Discrete Distribution Expected Value Function

H



$$\begin{aligned}P(X = -4) &= 0.30 \\P(X = 1) &= 0.40 \\P(X = 4) &= 0.30 \\E(X^2) - [E(X)]^2 &= ?\end{aligned}$$

$$E(X) = (-4)(0.3) + 1(0.4) + 4(0.3) = -1.2 + 0.4 + 1.2 = \boxed{0.4}$$

$$\begin{aligned}E(X^2) &= (-4)^2(0.3) + 1^2(0.4) + 4^2(0.3) = 16(0.3) + 1(0.4) + 16(0.3) \\E(X^2) &= 4.8 + 0.4 + 4.8 = \boxed{10}\end{aligned}$$

$$E(X^2) - [E(X)]^2 = 10 - (0.4)^2 = 10 - 0.16 = \boxed{9.84}$$