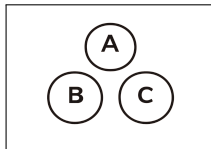


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Discrete Distribution Standard Deviation

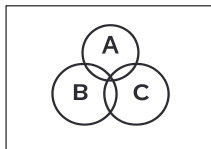
F



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

$$P(X = x) = \frac{1}{6}$$

$$\text{Var}(4X + 2) = 16 \text{Var}(X)$$

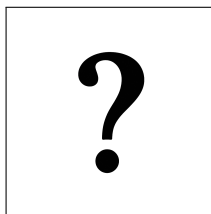


$$E(X) = \sum_{x=1}^6 x \cdot \frac{1}{6} = \frac{1+2+3+4+5+6}{6} = \frac{21}{6} = 3.5$$

$$E(X^2) = \sum_{x=1}^6 x^2 \cdot \frac{1}{6} = \frac{1^2+2^2+3^2+4^2+5^2+6^2}{6} = \frac{91}{6}$$

$$\text{Var}(X) = E(X^2) - [E(X)]^2 = \frac{91}{6} - (3.5)^2 = \frac{91}{6} - \frac{49}{4} = \frac{182-147}{12} = \frac{35}{12} = \frac{35}{12}$$

$$\text{Var}(AX + B) = A^2 \text{Var}(X)$$



$$\text{Var}(X) = 9$$

$$Y = 4X + 5$$

$$E(Y) = ?$$

$$\text{Var}(Y) = ?$$

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Discrete Distribution
Standard Deviation

F



$$\text{Var}(X) = 9$$

$$Y = 4X + 5$$

$$E(Y) = ?$$

$$\text{Var}(Y) = ?$$

$$\text{Var}(Y) = \text{Var}(4X + 5)$$

$$= 4^2 \text{Var}(X)$$

$$= 16 \cdot 9$$

$$= 144$$

$$E(Y) = E(4X + 5) = 4E(X) + 5 = 4 \cdot 4 + 5 = 21$$