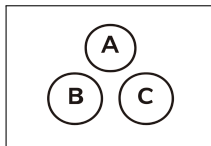


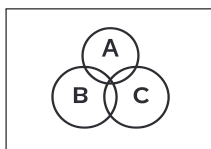
20 Discrete Distribution Exp Value / Variance

B



$$n = 6$$

$$p = \frac{1}{2}$$



$$E[X] = np = 6 \cdot \frac{1}{2} = \boxed{3}$$

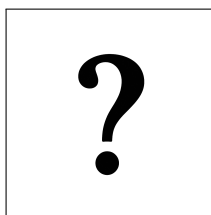
$$\text{Var}(X) = np(1 - p) = 3 \cdot \frac{1}{2} = \boxed{\frac{3}{2}}$$

$$E[X^2] = \text{Var}(X) + (E[X])^2$$

$$E[X^2] = \frac{3}{2} + 3^2$$

$$E[X^2] = \frac{3}{2} + 9$$

$$E[X^2] = \boxed{\frac{21}{2}}$$



$$n = 1000$$

$$p = 0.4$$

20 Discrete Distribution Exp Value / Variance

B



$$n = 1000$$
$$p = 0.4$$

$$\mu = E[X] = np = 1000 \times 0.4 = \boxed{400}$$

$$\sigma = \sqrt{\text{Var}(X)} = \sqrt{np(1-p)} = \sqrt{1000 \times 0.4 \times 0.6} = \sqrt{240} \approx \boxed{15.49}$$