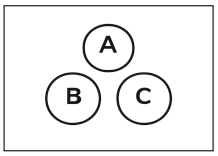
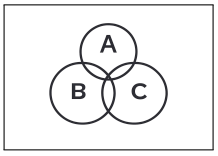
20 Discrete Distribution Exp Value / Variance G



$n = 6$

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



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

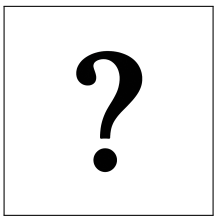
$\text{Var}(X) = np(1-p) = 3 \cdot \frac{1}{2} = \boxed{\frac{3}{2}}$

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

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

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

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



$n = 3$

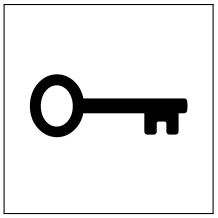
$p = 0.05$

$E[X] = ?$

$Var(X) = ?$

$P(X \geq 2) = ?$

20 Discrete Distribution Exp Value / Variance G



$n = 3$
$p = 0.05$
$E[X] = ?$
$Var(X) = ?$
$P(X \geq 2) = ?$

$E[X] = np = 3 \times 0.05 = \boxed{0.15}$

$Var(X) = np(1-p) = 3 \times 0.05 \times 0.95 = \boxed{0.1425}$

$P(X \geq 2) = P(X = 2) + P(X = 3)$

$P(X = 2) = \binom{3}{2}(0.05)^2(0.95)^1 = 3 \times 0.0025 \times 0.95 = 0.007125$

$P(X = 3) = \binom{3}{3}(0.05)^3(0.95)^0 = (0.05)^3 = 0.000125$

$P(X \geq 2) = 0.007125 + 0.000125 = \boxed{0.00725}$