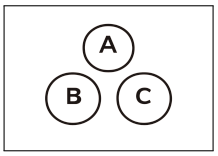
22 Discrete Distribution Geometric Variable L

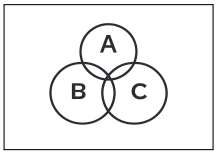


$p = 0.25$

$X = \{1, 2, 3, \dots\}$

$PMF = ?$

$E[X] = ?$



$P(X = x) = (1 - p)^{x-1}p$

$P(X = 1) = 0.25$

$P(X = 2) = 0.75(0.25) = 0.1875$

$P(X = 3) = 0.75^2(0.25) = 0.1406$

$E[X] = 1/p = 1/0.25 = \boxed{4}$

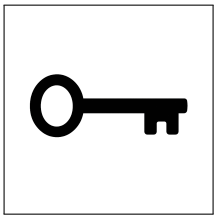
$Y = \{0, 1, 2, \dots\}$

$p = 0.2$

$P(Y = k) = (1 - p)^k p = (0.8)^k(0.2)$

$E[Y] = ?$

22 Discrete Distribution Geometric Variable L



$Y = \{0, 1, 2, \dots\}$
$p = 0.2$
$P(Y = k) = (1 - p)^k p = (0.8)^k (0.2)$
$E[Y] = ?$

$E[Y] = \frac{1-p}{p} = \frac{0.8}{0.2} = 4$