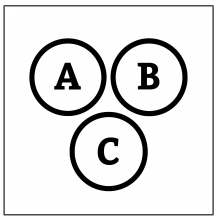
PMF and CDF



$P_0 = P_1 = P_2 = 1/4$

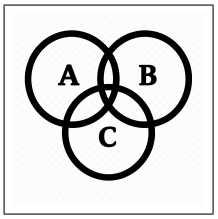
$X : \Omega \to \mathbb{R}$

$X(1,1) = 1 + 1 = 2 = \Omega_2$

$X(1,0) = 1 + 0 = 1 = \Omega_1$

$X(0,1) = 0 + 1 = 1 = \Omega_1$

$X(0,0) = 0 + 0 = 0 = \Omega_0$



PMF

$P(X = 0) = |\Omega_0| \times P_0 = 1 \times 1/4 = 1/4$

$P(X = 1) = |\Omega_1| \times P_1 = 2 \times 1/4 = 1/2$

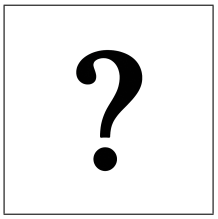
$P(X = 2) = |\Omega_2| \times P_2 = 1 \times 1/4 = 1/4$

CDF

$F(X = 0) = P(X = 0) = 1/4$

$F(X = 1) = P(X = 0) + P(X = 1) = 3/4$

$F(X = 2) = P(X = 0) + P(X = 1) + P(X = 2) = 1$



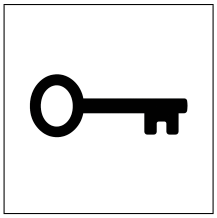
$P(X = -1) = 2c$

$P(X = 1) = 3c$

$P(X = 2) = 4c$

$c = ?$

J PMF and CDF J



$P(X = -1) = 2c$
$P(X = 1) = 3c$
$P(X = 2) = 4c$
$c = ?$

$2c + 3c + 4c = 9c = 1$

$c = \frac{1}{9}$

$P(X = -1) = 2c = \frac{2}{9}$

$P(X = 1) = 3c = \frac{3}{9} = \frac{1}{3}$

$P(X = 2) = 4c = \frac{4}{9}$