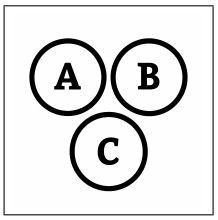
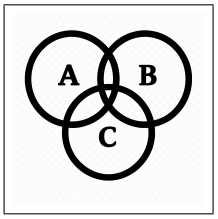
A Uniform Variable A



$X = \{2, 4, 6, 8\}$



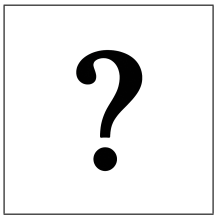
$P(X = x) = \frac{1}{4}$

$E(X) = \sum_x xP(X = x) = \frac{1}{4}(2 + 4 + 6 + 8) = \frac{20}{4} = 5$

$E(X^2) = \sum_x x^2P(X = x) = \frac{1}{4}(2^2 + 4^2 + 6^2 + 8^2) = \frac{1}{4}(4 + 16 + 36 + 64) = \frac{120}{4} = 30$

$\text{Var}(X) = E(X^2) - [E(X)]^2 = 30 - 25 = 5$

$E(3X - 1) = 3E(X) - 1 = 3(5) - 1 = 14$



$X = \{2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$

$P(X = 2) = 1/36$

$P(X = 3) = 2/36$

$P(X = 4) = 3/36$

$P(X = 5) = 4/36$

$P(X = 6) = 5/36$

$P(X = 7) = 6/36$

$P(X = 8) = 5/36$

$P(X = 9) = 4/36$

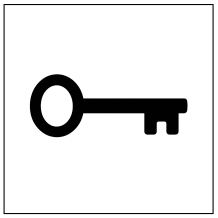
$P(X = 10) = 3/36$

$P(X = 11) = 2/36$

$P(X = 12) = 1/36$

$P(X = 2) = P(X = 3) = \ldots = P(X = 12) \rightarrow ?$

A Uniform Variable A



$X = \{2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$
$P(X = 2) = 1/36$
$P(X = 3) = 2/36$
$P(X = 4) = 3/36$
$P(X = 5) = 4/36$
$P(X = 6) = 5/36$
$P(X = 7) = 6/36$
$P(X = 8) = 5/36$
$P(X = 9) = 4/36$
$P(X = 10) = 3/36$
$P(X = 11) = 2/36$
$P(X = 12) = 1/36$
$P(X = 2) = P(X = 3) = \ldots = P(X = 12) \rightarrow$