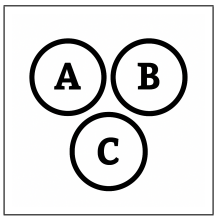
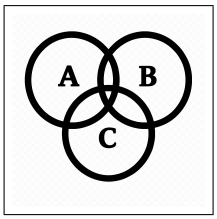
G Expected Value - Function G



$Y = 20 - 2X$

$E(X) = 6$

$E(Y) = ?$

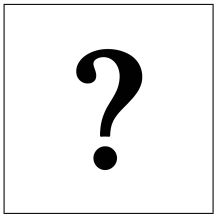


$E(Y) = E(20 - 2X)$

$E(20 - 2X) = E(20) - 2E(X)$

$E(20) = 20$

$E(Y) = 20 - 2(6) = 20 - 12 = 8$



$P(X = 1) = \frac{1}{30}$

$P(X = 2) = \frac{3}{10}$

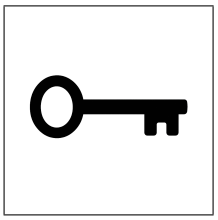
$P(X = 3) = \frac{1}{2}$

$P(X = 4) = \frac{1}{6}$

$E(X) = ?$

$E(X^2) = ?$

G Expected Value - Function G



$P(X=1)=\frac{1}{30}$
$P(X=2)=\frac{3}{10}$
$P(X=3)=\frac{1}{2}$
$P(X=4)=\frac{1}{6}$
$E(X)=?$
$E(X^2)=?$

$E(X)=\sum x\cdot P(x)$
$E(X)=1\cdot\frac{1}{30}+2\cdot\frac{3}{10}+3\cdot\frac{1}{2}+4\cdot\frac{1}{6}$
$E(X)=\frac{1}{30}+\frac{6}{10}+\frac{3}{2}+\frac{4}{6}$
$E(X)=\frac{1}{30}+\frac{18}{30}+\frac{45}{30}+\frac{20}{30}=\frac{84}{30}=\boxed{\frac{14}{5}}$

$E(X^2)=\sum x^2\cdot P(x)$
$E(X^2)=1^2\cdot\frac{1}{30}+4\cdot\frac{3}{10}+9\cdot\frac{1}{2}+16\cdot\frac{1}{6}$
$E(X^2)=\frac{1}{30}+\frac{12}{10}+\frac{9}{2}+\frac{16}{6}$
$E(X^2)=\frac{1}{30}+\frac{36}{30}+\frac{135}{30}+\frac{80}{30}=\frac{252}{30}=\boxed{8.4}$