Recitation 11

Problem 1

(a)

$$Ex(\overset{2\ Die}{\text{Double}} \mid \text{Double})$$

$$= 2 \cdot \tfrac{1}{6} + 4 \cdot \tfrac{1}{6} + 6 \cdot \tfrac{1}{6} + 8 \cdot \tfrac{1}{6} + 10 \cdot \tfrac{1}{6} + 12 \cdot \tfrac{1}{6}$$

$$= 7$$

(b) $Ex(2\ Die) = Ex(2\ Die \mid Double) \cdot Pr(Double) + Ex(2\ Die \mid Diff) \cdot Pr(Diff)$

$Ex(Dice) + Ex(Dice) = 7 \cdot \frac{1}{6} + Ex(2\ Die \mid Diff) \cdot \frac{5}{6}$

$7 \qquad\qquad 7$

(c) $Ex(Advance) = Ex(X_1 \mid \bar{E}_1) \cdot Pr(\bar{E}_1)$

$+ Ex(X_1 + X_2 \mid E_1 \cap \bar{E}_2) \cdot Pr(E_1 \cap \bar{E}_2)$

$+ Ex(X_1 + X_2 + X_3 \mid E_1 \cap E_2 \cap \bar{E}_3) \cdot Pr(E_1 \cap E_2 \cap \bar{E}_3)$

$+ 0$

$= \frac{77}{36}$

(d) $7 \cdot \frac{5}{6} + (7+7)\frac{5}{62} + (7+7+7)\frac{5}{63} = 8 + \frac{19}{72}$