1) \(9(0.1) + 7(0.3) - 5(0.6) = 0.9 + 2.1 - 3.0 = 0\)

3) \(60(0.4) + 52(0.5) + 50(0.1) = 24 + 26 + 5 = 55\)

5) \(A: \frac{1}{2}(1) + \frac{1}{6}(2) = \frac{1}{2} + \frac{1}{3} = \frac{5}{6}\)

\(B: \frac{2}{6}(3) = \frac{1}{3}\) not fair, + \(\frac{1}{6}\) for \(B\) if every roll

7) \(A: \frac{5}{36} + \frac{6}{36} + \frac{5}{36} = \frac{16}{36} = \frac{4}{9} * 5 = \frac{20}{9}\)

See p.60: sample space

\(B: \frac{20}{36} = \frac{5}{9} * 4 = \frac{20}{9}\) fair game

9) \(\frac{2}{54} = \frac{1}{27} * 5 = \frac{5}{27}\) joker

\(\frac{12}{54} = \frac{2}{9} * 2 = \frac{4}{9} = \frac{12}{27}\) face card

\(-\frac{20}{27} + \frac{12}{27} = -\frac{8}{27}\) or \(\frac{8}{27}\) loss

11) assume 5?5

\(\frac{1}{5}\) correct probability * 1 = \(\frac{1}{5}\)

\(\frac{4}{5}\) incorrect probability * \(-\frac{1}{4}\) = \(-\frac{1}{5}\)

expected outcome: 0

13) gain: both green

\(\frac{2C5 \cdot 3C0}{5C2} = \frac{2! \cdot 3!}{5!} = \frac{1}{10} \cdot 1 = +.20\)

one green

\(\frac{2C1 \cdot 3C1}{5C2} = \frac{2! \cdot 3!}{5!} = \frac{2 \cdot 3}{10} = .6 \cdot 1 = +.60\)

loss: no green

\(\frac{3C2}{5C2} = \frac{3}{10} = .3 \cdot -1 = -.30\)

gain: +.50
18) \( \frac{0.45 \text{ deaths}}{\text{million}} = 0.00000045 \) probability of dying per policy:

\[
1 - 0.00000045 (100,000) = 1 - 0.45 = 0.955 \text{ gain per policy.}
\]

\[
100,000 (1) - 0.00000045 (100,000) = 100,000 - 450 = 99,550 \text{ profit expected per 100,000 policies.}
\]

20) \# 35 - 0.12 (140) = 18.20 expected profit for warranty company.

21) \( \frac{1}{2000} (1000) + \frac{5}{2000} (100) + \frac{20}{2000} (10) = 0.5 + 0.25 + 0.10 \)

\# ticket cost = 0.85 profit = 0.15 loss.