

### Answer on Question #55602 – Math – Statistics and Probability

A Las Vegas roulette wheel has 38 different numerical values. If an individual bets on one number and wins, the payoff is 35 to 1.

- a) Show a payoff table for a \$10 bet on one number using decision alternatives of bet and do not bet.
- b) What is the recommended decision using the expected value approach?

#### Solution

a)

Decision alternatives	You Win	You Lose
Bet	$\$10 \cdot 35 - \$10 = \$340$	\$10
Do not bet	\$0	\$0

b)

$$E[X] = P(\text{Win})\$340 - P(\text{Lose})\$10 = \frac{1}{38} \$340 - \frac{37}{38} \$10 = -\$0.79 < \$0.$$

The recommended decision using the expected value approach is “do not bet”.