Math I
Expected Value Worksheet 2

Find the expected value using the information in each table.
(Notice that the probabilities add to 1 in each table.)

1) \begin{array}{|c|c|c|c|}
\hline
\text{Outcome,} \ x & 800 & -800 & 4000 \\
\text{Prob.,} \ x & 0.29 & 0.53 & 0.18 \\
\hline
\end{array}

2) \begin{array}{|c|c|c|c|}
\hline
\text{Outcome,} \ x & 12 & 19 & 36 & -3 \\
\text{Prob.,} \ x & \frac{2}{7} & \frac{1}{7} & \frac{1}{7} & \frac{3}{7} \\
\hline
\end{array}

3) Integer Game: 2 players choose an integer from 1 to 5. If the product of the two integers is even, then Player A scores 5 points and Player B loses 2 points. If the product of the two integers is odd, then Player B scores 5 points and Player A loses 2 points. Find the expected value of each player.

4) An airline is considering adding a route to the city of New Orleans, Louisiana. Market research predicts that if the airline serves New Orleans, there is a 42\% probability of making a $700,000 profit, a 22\% probability of breaking even, and a 36\% probability of losing $1,000,000. What is the expected value of adding a route to New Orleans?
5) A landscaper mows 25 lawns per day on sunny days and 15 lawns per day on cloudy days. If the weather is sunny 65% and cloudy 35% of the time, how many lawns can he expect to mow per day?

6) You are playing a number cube game where you need 60 points to win. On each turn you roll a pair of dice (6-sided number cube). If you roll doubles, your score is the product of the numbers. If you do not roll doubles, you do not score any points. Find the expected value of each turn. How many turns will it take on average to score 60 points?

7) 150 ticket for a raffle is sold for $20 per ticket. The 4 winning prizes are $300, $150 and 2 $50 prizes. Find the expected value per ticket.

8) In a proposed business venture, a company estimates that there is a 60% probability that it will make $95,000, a 20% probability that it will break even and a 20% probability that it will lose $65,000. How much can the company expect to gain or lose?

9) You can pay $2 at a local carnival and spin the spinner at right. The spinner is divided into 8 congruent sections. The section on which the spinner lands shows the dollar amount you win. What is the expected value for each time you play? Is the game fair?