

Place **ANSWERS ONLY** in the boxes.

1. Each individual Martian egg that hatches has a 17% probability of being male. If 15 eggs hatch, then find the following. Find the average (expected) number of males.

2. Timmy takes a 20 question multiple choice test. Each problem has answers A, B, C and D. His answers are absolute guesses. Find the average (expected) number of correct answers.

3) A dice game is played as follows. Two dice are rolled. If the player rolls a sum of 2 or 12, they win \$10, a sum of 4 or 5 wins \$12 and a sum of 6 or 7 wins \$17. They lose money \$10 if any other sum is rolled. If the game is played once, find the expected winnings (or loss). Round to nearest penny.

We would expect to WIN / LOSE (select one)

dollars

4) Mr. Rapapan is producing an outdoor concert. He estimates earnings of \$400000 if it does not rain, but only \$50000 if it rains. The weather bureau predicts that a chance of rain the day of the concert is 37%.

a) What are Mr. Rapapan's expected earnings from the concert?

b) An insurance company is willing to insure the concert for \$180000 against rain for a premium of \$40000. What are Mr. Rapapan's earnings if he buys the insurance?

c) Based on the expected earnings in a and b, should Mr. Rapapan purchase the insurance? Yes or no?

5) A game is played as follows....

First a die is rolled and the result is noted, then a coin is flipped.

If the flip results in HEADS, then the result on the die is doubled.

If the flip results in TAILS, then one point is subtracted from the result on the die.

a) Find the expected number of points if the game is played once.

b) What will be the expected number of points if you play that game 100 times?

6. A fair coin is tossed 3 times and X is a random variable whose value is twice the number of heads obtained minus 1. Give probability distribution of X and obtain $E(X)$

Probability
distribution of X :

$E(X)=$

7) Spin a spinner that shows numbers 7,8 or 9 twice. Let X be a sum of both spins. Obtain probability distribution of X and $E(X)$. Hint: there are 9 possible outcomes and 5 different sums are possible.

Probability
distribution of X :

$E(X)=$