

Due: Today

(1) Two *Fibonacci* dice (with faces 1, 1, 2, 3, 5, and 8) are rolled and the numbers are added. The variable x is the sum of the two faces.

(a) Construct a probability distribution for this experiment below.

(b) Draw a bar graph of the distribution below.

(c) What is the shape of the distribution?

Solution: _____

(d) Compute the expected value.

Expected Value = _____

(2) In the game of Chuck-a-luck, a player places a \$1 bet on a number from 1 to 6. Three dice are then rolled. The player wins \$1 for each die with the number they bet upon on it.

a. What is the probability that the player wins \$2?

Solution: _____

b. What is the expected value of this game?

Expected Value = _____

c. Instead of \$1, how much should be charged to make this a fair game?

Solution: _____

(3) A raffle costs \$5 per ticket, and is conducted by drawing tickets from a hat. There are 100 tickets. Twenty of them win \$5, ten win \$15, and one wins \$50.

a. Construct the probability distribution for this raffle below.

b. What is the expected value of the raffle?

Expected Value = _____

c. Add a fourth winning scenario that will make this a fair game.

Solution: _____