

Self-Check 4.1, 4.2

Name: _____ Date: _____ Row: _____

Self-Check 4.1, 4.2

1. People visiting video rental stores often rent more than one DVD at a time. The probability distribution for DVD rentals per customer at Video To Go is given in the following table. There is a five-video limit per customer at this store, so nobody ever rents more than five DVDs.

x	P(x)
0	0.03
1	0.50
2	0.24
3	
4	0.07
5	0.04

1. Describe the random variable X in words.
2. For this exercise, what are the values of x ?
3. Find the probability that a customer rents three DVDs.
4. Find the probability that a customer rents at least four DVDs.
5. Find the probability that a customer rents at most two DVDs.
6. On average, how many DVDs would you expect a customer rent?
7. What is the standard deviation?

1

Self-Check 4.1, 4.2

2. Suppose you play a game with a spinner. You play each game by spinning the spinner once. $P(\text{red}) = 25$, $P(\text{blue}) = 25$, and $P(\text{green}) = 15$. If you land on red, you pay \$10. If you land on blue, you don't pay or win anything. If you land on green, you win \$10. Over the long term, what is your expected profit of playing the game?
3. On May 11, 2013 at 9:30 PM, the probability that moderate seismic activity (one moderate earthquake) would occur in the next 48 hours in Iran was about 21.42%. Suppose you make a bet that a moderate earthquake will occur in Iran during this period. If you win the bet, you win \$50. If you lose the bet, you pay \$20. Let X = the amount of profit from a bet. If you bet many times, will you come out ahead?

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