

PROB STAT HONORS

Name _____

7.2 – SUMMARIZING RANDOM VARIABLES

Find the mean and standard deviation of the following random variables.

1. From past experience, a company found that in cartons of DVDs, 90% contain no defective DVDs, 5% contain one defective DVD, 3% contain two defective DVDs, and 2% contain three defective DVDs.

Number of cards X	0	1	2	3	4
Probability $P(X)$	0.18	0.44	0.27	0.08	0.03

2. A bank vice president feels that each savings account customer has, on average, three credit cards. The distribution above represents the number of credit cards that savings accounts customers at this bank own.

Number of accidents X	0	1	2	3	4
Probability $P(X)$	0.4	0.2	0.2	0.1	0.1

3. The county highway department recorded the following probabilities for the number of accidents per day on a certain freeway for one month. The number of accidents per day and their corresponding probabilities are shown above.

4. An insurance company insures a person's antique coin collection worth \$20,000 for an annual premium of \$300. If the company figures that the probability of the collection being stolen in any given year is 0.002, what will be the company's expected profit?

5. A lottery offers one \$1000 prize, one \$500 prize, and five \$100 prizes. One thousand tickets are sold at \$3 each. Find the expected profit if a person buys one ticket.

6. If a person rolls doubles when she tosses two dice, she wins \$5. For the game to be fair, how much should she pay to play the game?

7. A person pays \$2 to play a certain game by rolling a single die once. If a 1 or a 2 comes up, the person wins nothing. If, however, the player rolls a 3, 4, 5, or 6, he or she wins the difference between the number rolled and \$2. Is the game fair?