Ch. 6 Practice Test AP Statistics Name:

**Part 1: Multiple Choice.** *Circle the letter corresponding to the best answer.*

**1.** It has been estimated that about 30% of frozen chickens contain enough salmonella bacteria to cause illness if improperly cooked. A consumer purchases 12 frozen chickens. What is the probability that the consumer will have exactly 6 contaminated chickens?

**2.** Refer to the previous question. Suppose that a supermarket buys 1000 frozen chickens from a supplier. The standard deviation of frozen chickens that may be contaminated is:

3. In the town of Tower Hill, the number of cell phones in a household is a random variable W

with the following distribution:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| ***W*** | 0 | 1 | 2 | 3 | 4 | 5 |
| ***P(W)*** | 0.1 | 0.1 | 0.25 | 0.3 | 0.2 | 0.05 |

What is the probability that a randomly-selected household has at least two cell phones?

**4**. A rock concert producer has scheduled an outdoor concert. If it is warm that day, she expects

to make a $20,000 profit. If it is cool that day, she expects to make a $5000 profit. If it is

very cold that day, she expects to suffer a $12,000 loss. Based upon historical records, the

weather office has estimated the chances of a warm day to be 0.60; the chances of a cool day

to be 0.25. What is the producer’s expected profit?

**5**. The records of the boys and girls basketball teams are tracked over several seasons. If *X* = number of girls’ basketball wins and *Y*= number of boys’ basketball wins, and . If *D* = the difference *X – Y*, then find the mean and standard deviation of D.

**6.** Carla makes random guesses on her Statistics multiple-choice test, which has five choices for each question.

* 1. What is the probability that Carla’s first correct answer occurs on Question 5?
	2. What is the probability that Carla’s first correct answer occurs within the first ten questions?

**7.** Picard Partners is planning a major investment. The amount of profit X is uncertain but a

probabilistic estimate gives the following distribution (in millions of dollars):

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| X | 1 | 2 | 4 | 10 |
| P(X) | 0.2 | 0.5 | 0.2 | 0.1 |

1. Find the mean (expected value) of X.
2. Find the standard deviation of X.

 (c) Picard owes its source of capital a fee of $200,000 plus 10% of the profits X. So the firm actually retains Y = 0.9X – 0.2 from the investment. Use a linear transformation of your results in (a) and (b) to find the mean and standard deviation for Y.

**8** A professional soccer player succeeds in scoring a goal on 84% of his penalty kicks. Assume that each kick is independent. If he takes 8 kicks:

1. Find the probability that he scores exactly 6 goals.
2. What is the probability that he scores less than 2 goals?
3. What is the probability that scores at least 5 goals?