# CHAPTER 6 REVIEW Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**1.** Sam is a representative who sells large appliances such as  
refrigerators and stoves. Let *x* = number of appliances Sam

sells on a given day. Let *f* = frequency (number  
of days) pm which he sells *x* appliances. For a random   
sample of 240 days, Sam had the following sales record.

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| *x* | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| *f* | 9 | 72 | 63 | 41 | 28 | 14 | 8 | 5 |

Assume the sales record is representative of the population  
of all sales days.

**(a)** Use the relative frequency to find *P*(*x*) for *x* = 0 to 7. **1. (a)** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| **(b)** Create a histogram of the probability distribution of part (a). | **(b)** | CHART |

**(c)** Compute the probability that *x* is between 2 and 5  
(including 2 and 5). **(c)** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(d)** Compute the probability that *x* is less than 3. **(d)** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(e)** Compute the expected value of the *x* distribution. **(e)** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(f) Compute the standard deviation of the *x* distribution. (f) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| X | P(x) | xP(x) | x - µ | ( x - µ )2 | ( x - µ )2P(x) |
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**2.** The director of a health club conducted a survey and found  
that 23% of members used only the pool for workouts. Based  
on this information, what is the probability that for a random  
sample of 10 members, 4 used only the pool for workouts? **2.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**3.** Of those mountain climbers who attempt Mt. McKinley,

only 65% reach the summit. In a random sample of 11  
mountain climbers who attempt to climb Mt. McKinley,  
what is the probability of each of the following?

**(a)** All 11 reach the summit. **3. (a)** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(b)** At least 9 reach the summit. **(b)** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(c)** No more than 3 reach the summit. **(c)** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(d)** Exactly 9, 10, or 11 reach the summit. **(d)** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**4.** A coach found that about 12% of all hockey games end  
in overtime. What is the expected number of games end-  
ing in overtime if a random sample of 50 hockey games   
are played? **4.** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**5.** The probability that a semi-truck exceeds the speed limit on  
I-80 between Cheyenne and Rock Springs, Wyoming is  
about 75%. Suppose a random sample of 5 trucks are  
observed.

|  |  |  |
| --- | --- | --- |
| **(a)** Make a histogram showing the probability that *r* = 0, 1, 2, 3, 4, 5 trucks are exceeding the speed  limit. | **5. (a)** | CHART |

**(b)** Find the mean *μ* of this probability distribution. **(b)** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(c)** Find the standard deviation *σ* of the probability   
distribution. **(c)** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**6.** Records show the probability of catching at least one

northern pike over 40 inches at Taltson Lake (Canada)

is about 15% for each full day a person spends fishing. A

persons spends 7 days fishing. Let *x* = the number of days

the person catches at least one northern pike over 40 inches.

**(a)** Find the mean *μ* of this probability distribution. **6.** **(a)** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(b)** Find the standard deviation *σ* of the probability   
distribution. **(b)** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(c)** Using Chebyshev’s theorem, would it be unusual for a   
person to catch a 40 inch northern pike on 4 of the 7 days? **(c)** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_