

More Practice for Exam 2

1. The semi-annual returns for three stocks over an 18 year period are examined. The probability that Stock 1 will outperform the other two stocks is 50%, the probability that Stock 2 will outperform the other two stocks is 30%, and the probability that Stock 3 will outperform the other two stocks is 20%. Calculate the expected value AND variance of this distribution.
ANSWER: $E(x) = 1.7$ $\text{variance}(x) = 0.61$
2. The weekly demand for Baked Lay's potato chips at a certain Subway sandwich shop is a normally distributed random variable with a mean of 450 and a standard deviation of 80. What is the highest weekly demand for Baked Lay's potato chips for the bottom 35% of the weeks?
ANSWER: *The highest weekly demand for Baked Lay's potato chips for the bottom 35% of the weeks is 418.8 bags.*
3. How many ounces are there in a glass of wine at restaurants in LA? A careful bartender always tries to squeeze five glasses of wine out of each bottle. Some restaurants use a relatively small glass to create the illusion that the customer is getting his/her money's worth. Suppose that the mean number of ounces of wine in a glass is 5.5 with a standard deviation of 0.5. Assume that the amount of wine is normally distributed. What is the probability that a restaurant selected at random, serves a glass of wine that contains between 4.9 ounces to 5.3 ounces?
ANSWER: *There is a 22.95% chance that a restaurant selected at random, serves a glass of wine that contains between 4.9 ounces to 5.3 ounces of wine.*
4. Battery manufacturers compete on the basis of the amount of time their products last in camera and toys. A manufacturer of alkaline batteries has observed that its batteries last for an average of 26 hours when used in a toy racing car. The amount of time is normally distributed with a standard deviation of 2.5 hours. What is the least amount of time that 34.6% of the batteries will last in a toy racing car?
ANSWER: *The least amount of time that 34.6% of the batteries will last in a toy racing car is 27 hours.*
5. Suppose a subdivision on the south side of Corpus Christi contains 1200 houses. The subdivision was built in 2002. A sample of 98 houses is selected randomly and evaluated by an appraiser. The mean appraised value of a house in this subdivision is \$219,500, with a standard deviation of \$15,750. What is the probability that the sample average is greater than \$222,980?
ANSWER: *There is a 1.13% chance that the sample average is greater than \$222,980 based on a sample of size 98.*
6. Suppose a subdivision on the south side of Corpus Christi is being studied. The subdivision was built in 2002. The mean appraised value of a house in this subdivision is \$209,500, with a standard deviation of \$18,500. Sixty-three percent of the houses will be worth at least what amount?
ANSWER: *Sixty-three percent of the houses will be worth at least \$203,395.*