

Math 1600, Section 1, Fall 2010 – Statistics
Quiz 2 Review Sheet (Chapters 5 and 6) - October 25, 2010

1. Define a **random variable**.
2. Define a probability distribution.
3. Give an example of a discrete random variable.
4. Give an example of a continuous random variable.
5. What is a **Bernoulli Trial**?
6. What is a probability model?

7. A company that sells magazine subscriptions announces a sweepstakes to attract new customers. The prizes and chances of winning are listed on the advertisement flyer as:

Prize	Chance
\$50,000	1 in 250,000
\$5,000	1 in 50,000
\$100	1 in 500

Calculate your expected winnings.

8. The number of days, X , that it takes the post office to deliver a letter between City A and City B has the probability distribution:

X	$f(x)$
3	.4
4	.4
5	.2

- a. Find the expected number of days for the post office to deliver a letter between City A and City B.
 - b. Find the standard deviation of the number of days for the post office to deliver a letter between City A and City B.
 - c. Draw the probability histogram and locate the mean on the histogram.
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9. Calculate the mean and the standard deviation of the binomial distribution with:
 $n = 14$ and $p = .4$

 10. Let X be the number of successes in the 14 trials. Using the **formula**, with $p = .4$, compute:
 $P[X = 6]$

 11. If X is normally distributed with a mean on 100 and a standard deviation of 8, find
 - a. $P[X < 107]$
 - b. $P[X > 90]$
 - c. $P[96 < X < 106]$

 12. If X is normally distributed with a mean on 100 and a standard deviation of 5, find b such that
 - a. $P[X < b] = .6700$
 - b. $P[X > b] = .0110$

 13. The weights of apples served in a restaurant are normally distributed with a mean of 5 ounces and standard deviation of 1.6 ounces. What is the probability that the next person served will be given an apple that weighs less than 4 ounces?