**Objectives for the Probability Quiz**

According to the state, in this unit the student will:

 • Calculate probabilities using the General Multiplication Rule and interpret the results in context (In other words, use the Fundamental Counting Principal to create a sample space.)

 • Use permutations and combinations in conjunction with other probability methods to calculate probabilities of compound events and solve problems. (Know when and how to use each method of counting.)

 • Define random variables, assign probabilities to its sample space, and graphically display the distribution of the random variable. (Comprehend word problems and calculate probabilities of multiple events and graph those distributions. Example: Use the binomial theorem to calculate/graph probabilities.)

• Calculate and interpret the expected value of random variables

• Develop the theoretical and empirical probability distribution and find expected values (Use the normal curve to calculate probabilities.)

• Set up a probability distribution for a random variable representing payoff values (Make a table of expected values.)

• Make and explain in context decisions based on expected values (Explain what an expected value means.)

CONCEPTS AND SKILLS TO MAINTAIN In order for students to be successful, the following skills and concepts need to be maintained

• Understand the basic nature of probability, including independent events

• Determine probabilities of simple (#events in desired outcome/# events in the sample space) and compound events (P(A or B) = P(A) + P(B) – P(A and B) )

• Understand the Fundamental Counting Principle and conditional probability (P(A/B) = P(A and B)/P(B) )

• Organize and model simple situations involving probability

Although the units in this instructional framework emphasize key standards and big ideas at specific times of the year, routine topics such as estimation, mental computation, and basic computation facts should be addressed on an ongoing basis. Ideas related to the eight process standards should be addressed constantly as well.