Key formulas for Exam 1:

1. proportion of cases experiencing an event = # of cases experiencing the event divided by the total number of cases (multiplied by 100 to get a percentage)

Note: this formula can be used to calculate a proportion of cases experiencing an event within a total sample or it can be used to calculate the proportion of cases experiencing an event within a group.

2. recidivism proportion or rate: # of recidivists divided by the number of people at risk for recidivism (multiplied by 100 to get a percentage).

Note: this formula is a special case of formula #1.

3. a UCR-type crime rate calculation: # of crimes divided by the size of the population; once you have this fraction you multiply it by 100,000 to get the number of crimes per 100,000 population.

4. a NCVS-type personal victimization rate calculation: # of victimizations divided by the size of the population; once you have this fraction, you multiply it by 1,000 to get the number of victimizations per 1,000 people (or households).

5. Any rate per ### people (or households) = (# of events / size of the population) x ###

6. Percent change statistic 2 versions:

- Version 1: [(CTime - BTime) / BTime] x 100
- Version 2: [(Time 2 - Time 1) / Time 1] x 100

where CTime = Comparison Time (or Year), BTime = Base Time (or Year), Time 2 = the second time a statistic is measured and Time 1 = the first time a statistic is measured. Remember, the 100 multiplier converts the proportion change into a percent change statistic.

7. The sample mode is the most frequently occurring case.

8. The sample mean is the sum of the scores divided by the number of scores.

9. The sample median is calculated 2 different ways depending on whether the number of scores is even or odd. In both cases, the first step is to put the scores in order.

9a. Things are simplest when the number of scores is odd. In that case, you identify the score that has the same number of scores above it and below it. That's the sample median.

9b. If the number of scores is even, then you identify the two middle scores of the distribution. Then you calculate the average of those two scores. Let the score just below the mid-point be S_L and the score just above the mid-point be S_H. Then, the sample median is $(S_L+S_H)/2$.

10. Probability an event occurs = # of times event occurred divided by the # of times the event could have occurred. This also represents the proportion or fraction of times the event occurred.