Unit 8 Study Guide (Sections 10.4-10.8, 1.7, 2.7) Name _____

You should be able to do the following…..

- 1. Use the fundamental counting principle. (Section 10.4)
  - A college student chooses 1 out of 3 math classes, 1 out of 11 art classes, and 1 out of 8 science classes. How many possible choices are there for the 3 classes?
  - How many possible security codes can be made using 4 digits followed by 3 letters if…..
    - Digits and letters can be repeated
    - Digits and letters cannot be repeated
    - Only even digits are used and the letters "O", "R" and "T" are not used
  - Find the number of meals possible from 2 soups, 6 entrees, and 5 side dishes if you select one of each course.

- 2. Find the number of orders possible in a permutation. (Section 10.4)
  - Find the number of orders that 4 members from a team of 10 can run a relay race.
  - In how many ways can the 40 contestants in a spelling bee finish first through third?
  - How many ways can 15 students be chosen as student council President, Vice-President, Treasurer, and Secretary?

- 3. Find the number of combinations possible. (Section 10.5)
  - You must read 3 books from a list of 15 books for a summer reading program. How many different choices do you have for the three books?
  - How many different 7-card hands can be dealt from a standard 52-card deck of playing cards.
  - How many groups containing 4 boys and 3 girls can you choose from a class that contains 12 boys and 9 girls?

- 4. Solve basic probability and odds problems. (Section 10.6)
  - A number is chosen at random from the numbers 1-50. Find the…..
    - Probability the number is 10 or less.
    - Probability the number is a multiple of 5.
    - Odds that the number is greater than 30.
    - Odds that the number ends in a 0.
    - Odds that the number is even.
  - From a standard deck of 52 cards, select one card at random. Find the…..
    - Probability that card is a "7".
    - Probability that the card is a spade.
    - Odds that the card is a "10" or "A".
    - Odds that the card is a black "J".

- 5. Solve probability problems involving **OR** (overlapping events). (Section 10.7)
  - If a card is randomly selected from a deck of 52 cards, what is the probability a "7" or "heart" will be chosen?
  - If a die is rolled, what is the probability of getting an even number or a number less than 5?
  - The probability that a student at a school participates in basketball is 8%. The probability that a student at the school participates in track and field is 10%. If the probability that a student participates in basketball OR in track and field is 15%, what is the probability that a student participates in both?

- 6. Solve probability problems involving AND (independent and dependent events). (Section 10.8)
  - Find the probability of drawing the given marbles at random from a bag of 3 red marbles, 5 blue marbles, and 2 green marbles.
    - Drawing a blue marble, then a red marble (with replacement)
    - Drawing a red marble, then a green marble (without replacement)
    - Drawing a blue marble, then a green marble (without replacement)
  - A hat contains pieces of paper numbered 1 through 15. You draw 2 numbers at random.
    - What is the probability the first number is odd and the second is even (with replacement)?
    - What is the probability the first number is odd and the second is even (without replacement)?

- 7. Find the mean, median, mode, range, lower quartile, upper quartile, and IQR when given a set of data. (Section 1.7)
  - The following data set shows the ages of the players on a baseball team.

    33 29 38 23 29 25 26 22 31
    32 25 30 37 31 35 27 31
  - The following data represent tests score for a Statistics class:

    95 65 90 55 88 70 88 100 80 88

- 8. Create a boxplot and stem and leaf plot to represent a set of data. (Section 1.7)
  - Create a steam and leaf plot for each data set in #7
  - Crate a boxplot for each data set in #7

- 9. Identify a scatterplot as having a positive, negative, or no correlation. (Section 2.7)
  - Draw three different scatterplots, one with a positive, one with a negative, and one with no correlation.

- 10. Draw a line of best fit on a scatterplot and find the equation of the line. (Section 2.7)
  - The table shows the number of millions of barrels b of crude oil produced in Alaska where t is the number of years since 1995. Use the data table and graph to find the equation of the best fitting line. Show all of your work.

t	0	1	2	3	4	5
b	542	508	473	429	383	354