**STATION #1:**

GRAPHING LOGARITHMIC AND EXPONENTIAL FUNCTIONS

***Directions:*** *Sketch a graph for each of the following functions. State the domain, range, asymptotes, and end behavior.*

1. f(x) = log (x + 4) – 3
2. f(x) = ½ logx + 2
3. f(x) = 3(2)x + 3
4. f(x) = (1/2)x-4 – 1

**STATION #2:**

EXPONENTIAL WORD PROBLEMS

1. Suppose you deposit $6000 into a savings account that pays an annual rate of 4% compounded continuously. How many years will it take for the balance to reach $8000? Round to the nearest tenth of a year.
2. Phosphorus-32 is used to study a plant’s use of fertilizer. It has a half-life of 14.3 days. How many milligrams of phosphorus-32 remain after 92 days from a 100-mg sample? Round to the nearest whole milligram.
3. The value of a new car will depreciate by 10.5% each year. A new car retailed for $35,800.
4. How much will it be worth after 3 years?
5. How long will it take to reach a value of $12,000? Round to the nearest hundredth of a year.

**STATION #3:**

SIMPLE LOGARITHMS

***Directions:*** *Evaluate each of the following.*

1. log2128
2. log776
3. log412

***Directions:*** *Write each equation in exponential form.*

1. log4256 = 4
2. log232 = 5
3. A single-celled bacterium divides every hour. The number N of bacteria after t hours is given by the formula log2N = t. After how many hours will there be 64 bacteia?

**STATION #4:**

PROPERTIES OF LOGARITHMS

***Directions:*** *Write each expression as a single logarithm.*

1. log 4 + log 3 – 2logx
2. 1/3(log x – logy)
3. log y – 4(logr + 2logt)

***Directions:*** *Expand each logarithm.*

1. log3x2y
2. $log\sqrt{\frac{2x}{y}}$
3. Determine if the following is true or false

½ log44x = log42x

**STATION #5:**

SOLVING LOGARITHMS

***Directions:*** *Solve each of the following equations.*

1. 3x+5 – 5 = 15
2. 92x = 27
3. 4 log x = 4
4. 2 log 3x – log 9 = 1
5. log (3x2) = log(4x + 32)

**STATION #6:**

SOLVING NATURAL LOGS AND BASE E

***Directions:*** *Solve each of the following equations.*

1. ln ex+5 = 17
2. elnx = 21
3. ex + 6 + 5 = 1
4. 5 ln (4x – 6) = -6
5. Write as a single natural log: 3 ln 5 – ln 2
6. Simplify: $\frac{lne^{2}}{2}$