

Topics for Summer Review:

- Function Notation
 - [Worksheet](#)
- Graphing Quadratic Functions
 - Graphing from the equation
 - X-int, y-int, vertex, domain, range
 - Creating the equations from the graph
 - See function review worksheet in folder
- Exponential Graphs
 - Y-int, horizontal asymptote, domain and range
 - [Worksheet 1](#)
- Log Rules
 - [Worksheet 1](#)
 - [Worksheet 2](#)
- Solving log and exponential equations (see worksheet in folder)
- Word Problems
- Trigonometric Functions
 - Using the unit circle to evaluate trig ratios (first quadrant should be memorized)
 - [Trig Worksheet: Trig Ratios at Special Angles](#)
 - Graphing sine, cosine, and tangent using transformations
 - [Trig Worksheet: Graphs of Trig Functions](#)
 - Solving trig equations
 - [Trig Worksheet: Solving Trig Equations](#)

Station 4: Word Problems:

1. Ms. MacGarva decides to start a retirement fund. She has \$12000 to invest. Interest is compounded monthly at a **rate of 4.5%**. If she retires in **35 years** how much money will she have? How long will it take if she wants to retire with \$60,000?
2. The initial bacterium count in a culture is 1000. A biologist later makes a sample count of the bacteria in the culture and finds that the relative growth rate is 35% per hour.
 - a. Find a function that models the number of bacteria after t hours.
 - b. What is the estimated count after 10 hours? When will the bacteria count reach 80,000?
3. A cup of coffee has a temperature of 240°F and is placed in a room that has a temperature of 68°F. After 20 minutes the temperature is 200°F.
 - a. Find a function that models the temperature of the coffee at time t
 - b. Find the temperature of the coffee after 20 minutes.
 - c. When will the coffee have cooled to 100°F?
4. Ms. MacGarva decides to start a retirement fund. She has \$9000 to invest. Interest is compounded quarterly at a rate of 5.6%. If she retires in 40 years how much money will she have? How long will it take if she wants to retire with \$60,000?
5. The pH level of orange juice is 4.16. What is the Hydrogen ion concentration?
6. The Napa earthquake in 2015 had a 4.1 magnitude. Compare its intensity level to the 1906 earthquake (magnitude 8.3).
7. The hydrogen ion concentration of a liquid is 4.5×10^{-7} . Is the liquid acidic or basic?
8. Under ideal conditions a certain bacteria population doubles every three hours. Initially there are 1000 bacteria in a colony.
 - a. Find a model for the bacteria population after t hours.
 - b. How many bacteria are in the colony after 15 hours?
 - c. When will the bacteria count reach 100,000?
9. Find the amount of an annuity that consists of 36 monthly payments of \$1000 each into an account that pays 6% interest per year.
10. How much money should be invested every month at 8.6% per year, compounded monthly to have \$5000 in 2 years?

