Name:

Date:

APCS Unit 1 Lab Exercises

1. Write the following code in a class named MathFunctions. The code should be in a main class; each section should be clearly labeled using comments. For each task, include code to prompt the user for values.
    a. Write code that determines and prints the distance between two points given the x and y coordinates of each point.
    b. Write code that determines and prints the area of a triangle given the 3 side lengths. (Hint: Use Heron's Formula)
    c. Write code that takes three integers that represent a, b, and c in the standard form of a quadratic equation and print the number and types of solutions that should be expected. (Hint: Use the discriminant)
    d. Write code that determines the solutions of a quadratic equation given a, b, and c in the standard form of a quadratic equation and prints the two solutions in a formatted String. (Warning: Consider what happens when the discriminant is negative. Include some conditions to prevent NaN.)
    e. Write code that takes a number of days and determines how many weeks and days it is. It should print the number of weeks and days in a formatted String.

2. Write a short class LunchTime with no fields, no constructors, and just one static main method. Given two integers for the current time (hours and minutes before 1PM), the method should print the number of minutes left until lunch, which is schedule at 1PM.

APCS Unit 1 Lab Exercises
Rubric

	3	2	1	0
Scanner	Scanner is properly declared and called; values are properly stored in variables.	Scanner is correctly declared but there are 1-2 errors in calling and storing values.	Scanner is declared but there are errors in the declaration and/or calling and storing of values.	Scanner does not exist.
Distance	Code calculates and returns the distance given the parameters.	Correct logic is evident but there is an error with the calculation of distance.	Code has logic error and/or errors in the calculation of distance.	Code for distance does not exist.
Area	Method is declared properly, calculates and returns the area given the parameters.	Method is declared properly but there is an error with the calculation of area.	Method is missing parameters and/or has errors in the calculation of area.	Code for area does not exist.
Discriminant	Method is declared properly, discriminant is calculated and String is returned.	Method is declared properly, discriminant is calculated and returned.	Method is missing parameters and/or has errors in the calculation of the discriminant and/or returns the discriminant.	Code for discriminant does not exist.
Quadratic Solutions	Method is declared properly, both solutions are calculated and a String is returned.	Method is declared properly, one solution is calculated and a String is returned.	Method is declared properly and solutions are calculated correctly but the return type is not a String	Code for does not exist.
Days to Weeks	Method is declared properly, weeks and days are correctly calculated and a String is returned.	Method is declared properly but there is an error in calculating the weeks and days. A String is returned.	Method is declared properly and values are calculated correctly, but the return type is not a String.	Code for days to weeks does not exist.
LunchTime	Class and main method are declared correctly, calculate values correctly and print the number of minutes remaining.	Class and main method are declared correctly, but there is an error in calculation. The number of minutes remaining is printed.	Class and main method are declared properly but there are errors in calculation and/or the output is incorrect.	Code for lunch time does not exist.
Style	Classes follow Java style guidelines and include appropriate variable names, comments, etc.	Classes follow Java style guidelines and include 1-2 questionable variable names, comments, etc.	Classes follow Java style guidelines and include multiple questionable variable names, comments, etc.	Classes are missing comments and/or have inappropriate variable names.