

Introduction to OOP EECS 1510

Project 2 Elementary Aspects of Java

100 Points - Due Tuesday February 7 in class

a. Modulo Division Write a program to read in a 3-digit integer and print out the sum of the digits of the integer. Use the % operator to extract the digits and use the / operator to extract the digit. Use the following format for input/output:

Enter an integer: 744
The sum of the digits is: 15

b. Approximating Pi Pi can be computed using the formula

$$4 * (1.0 - 1/3 + 1/5 - 1/7 + 1/9 - 1/11 + 1/13 - \dots)$$

Write a program to display the result of

$$4 * (1.0 - 1/3 + 1/5 - 1/7 + 1/9 - 1/11 + 1/13)$$

Note: be sure to use 1.0 not 1 in your program.

c. Wind Chill The National Weather Service has a relatively new formula to measure the wind chill temperature. The formula is

$$\text{Wind Chill} = 35.74 + 0.6215T - 35.75V^{0.16} + 0.4275TV^{0.16}$$

where T = outside temperature (°F) and V = wind velocity (mph). The formula cannot be used for wind speeds below 2 mph, temperatures below -58°F, or temperatures above 41°F.

Write a program that prompts the user to enter a temperature and a wind speed, and then displays the wind chill temperature. You may assume the values entered are valid.

Enter temperature(Fahrenheit): 5.3
Enter wind speed(mph): 6
The wind chill index is -5

d. Distance Given the two points (x_1, y_1) and (x_2, y_2) , the distance between these points is given by the formula:

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Write a program that prompts the user to enter the two points, and then displays the distance between them. You may assume the values entered are valid. For example,

Enter x1 and y1: 1.0 5
Enter x2 and y2: -2.0 1
The distance is 5.0

