Introduction to Programming EECS 1500
Project 2 Elementary Aspects of C++

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 extrct 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 - . . .)

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
```