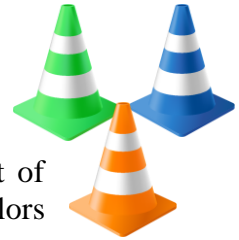


Assignment # 1

C++ basics and IF/Else

Submission Dead Line: **Friday 21/9/2018**

Question 1: A Company manufactures traffic cones. The company is preparing to bid on a project that will require it to paint its cones in different colors. It also wants to estimate the total cost from the area to be painted. The company has hired you to write a program in C++ that will compute the surface area of a cone and the cost of painting it given its radius, its height, and the cost per square foot of three different colors of paint.



Requirements:

A typical cone is 30 inches high and 8 inches in diameter. The orange paint costs 30.5 rupees per square foot; the blue costs 15.25 rupees; and the green costs 20.75 rupees. The area of a cone (not including its base, which won't be painted) equals

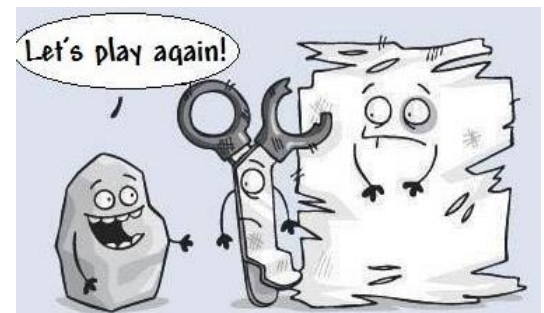
Surface Area = $\pi \times r \times \sqrt{(r^2 + \text{heightInFeet})}$, where r is the radius of the cone and h is its height.

One feet = 12 Inches

Output: The surface area of the cone in square feet, and the costs of painting the cone in the three different colors, must be displayed in floating point form to three decimal places.

Question 2: Input 5 numbers from the user and determine, if a duplicate exists in the numbers. For example if the user inputs 1, 2, 1, 3, 4. Your program should output “duplicate exists” otherwise it should output “duplicate does not exist”.

Question 3: Write and run a program that plays the game of “Rock, paper, scissors.” In this game, two players simultaneously say (or display a hand symbol representing) either “rock,” “paper,” or “scissors.” The winner is the one whose choice dominates the other. The rules are: paper dominates (wraps) rock, rock dominates (breaks) scissors, and scissors dominate (cut) paper.



You can use rock=1, paper=2, scissors= 3;

Sample Input: 1 1 rock, rock

Sample Output: Draw

Sample Input: 1 2 rock, paper

Sample Output: 2 and player wins

Question 4: The first 11 prime integers are 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, and 31. A positive integer between 1 and 1000 (inclusive), other than the first 11 prime integers, is prime if it is not divisible by 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, and 31.

Write a program that prompts the user to enter a positive integer between 1 and 1000 (inclusive) and that outputs whether the number is prime. If the number is not prime, then output all the numbers, from the list of the first 11 prime integers, which divide the number.