

# Handout-1

Recall the formulas for computing surface area and volume of a cone:

## Cone

### Surface Area

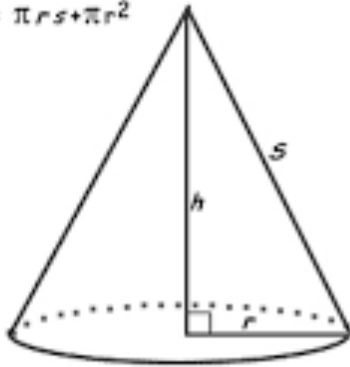
We will need to calculate the surface area of the cone and the base.

Area of the cone is  $\pi r s$

Area of the base is  $\pi r^2$

Therefore the Formula is:

$$SA = \pi r s + \pi r^2$$



### Volume

$$V = \frac{1}{3} \pi r^2 h$$

A program can have the following 3 types of errors:

- Compilation errors
- Logic errors
- Formatting errors

The program on the following page prompts a user for the height and diameter of the cone. This program has multiple errors in it.

You are to do the following:

- 1) Identify each error and specify which of the 3 types of errors it is.
- 2) Fix each error
- 3) Change the print statements so that they print only 2 decimal places, they are right aligned. Recall the maximum height and diameter are 10 meters.

```

//
// main.c
// APSC 160 Tutorial – Introduction + Fundamentals A
// Identifying errors: compilation, logic and format
//
// Created by Celina Berg on 2016-09-09.
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//

#include <stdio.h>
#include <math.h>

#define PI 3.14          /* accurate constant for PI */

int main(void) {

double w, x;
double y, z;
double r;
    r = w / 2;
printf("Please enter the diameter of your circular cone in meters: "
      " with a maximum of 10: ");
    scanf("%lf", w);
printf("Please enter the height of your circular cone in meters: "
      " with a maximum of 10: ")
    scanf("%lf", &x);
    y = PI * r * sqrt(pow(r, 2.0) + pow(x, 2.0) + PI * pow(r, 2.0));
    z = PI * pow(r, 2.0) * x / 3;
printf("The surface area of your circular cone is:\n %f square meters.\n" y);
printf("The volume of your circular cone is:\n %f cubic meters.\n", z);
return 0;
}

```

