Practice 1

1. **Weight conversion** Write a program that prompts the user to enter the weight of a person in kilograms and outputs the equivalent weight in pounds. (Note that 1 kilogram = 2.2 pounds.)

2. **Calculating tips** Write a program that reads the subtotal and the gratuity rate and then computes the gratuity and total. For example, if the user enters 10 for subtotal and 12% for gratuity rate, the program displays $1.2 as gratuity and $11.2 as total. Here is a sample run:

```
Enter the subtotal and gratuity rate: 10 12
The gratuity is $1.2 and total is $11.2
```

3. **Triangular prism** Write a program that reads in the length of the sides of an equilateral triangle and the height of a triangular prism, and computes the area and volume using the following formulas:

$$area = \frac{\sqrt{3}}{4}(side)^2$$

$$volume = area * height$$

Here is a sample run:

```
Enter length of the sides and height of the Equilateral
triangle: 3 5
The area is 3.89
The volume of the triangular prism is 19.48
```

4. **Body Mass Index (BMI)** Body Mass Index (BMI) is a measure of health on weight. It can be calculated by taking your weight in kilograms and dividing by the square of your height in meters. Write a program that prompts the user to enter a weight in pounds and height in inches and displays the BMI. Note that one pound is 0.45359237 kilograms and one inch is 0.0254 meters. Here is a sample run:

```
Enter weight in pounds: 95.5
Enter height in inches: 50
BMI is 26.8573
```

5. **Frame** A piece of wire is to be bent in the form of a rectangle to put around a picture frame. The length of the picture frame is 1.5 times the width. Write a program that prompts the user to input the length of the wire and outputs the length and width of the picture frame.

6. **Vroom vroom** Two cars A and B leave an intersection at the same time. Car A travels west at an average speed of x miles per hour and car B travels south at an average speed of y miles per hour. Write a program that prompts the user to enter the average speed of both the cars and the elapsed time (in hours and minutes) and outputs the (shortest) distance between the cars.