

## Problem Set 1 Exercise #08: Speed of Sound

**Reference:** Week 3 Lecture notes

**Learning objective:** Writing functions; Math functions

**Estimated completion time:** 20 minutes

### Problem statement:

Write a program **speed.c** that calculates the speed of sound  $s$  in air of a given temperature  $T$  (in degree Fahrenheit).

Formula to compute the speed  $s$  in feet/sec is:

$$s = 1086 \sqrt{\frac{5T + 297}{247}}$$

All variables should be defined in data type **double**.

Your program should contain a function **speed\_of\_sound()** to compute and return the speed given the temperature. Note that there shouldn't exist any input/output statement in your **speed\_of\_sound()** function as this function is solely for computation purpose (i.e. compute and return the value back to the **main()** function). The **main()** function is responsible for data input/output.

Please correct your output of real number to two decimal places.

### Sample run #1:

```
Temperature in degree Fahrenheit: 95.8
Speed = 1924.92 ft/sec
```

### Sample run #2:

```
Temperature in degree Fahrenheit: 100
Speed = 1950.79 ft/sec
```