

## Practice S07P03: Surface Area and Volume

[http://www.comp.nus.edu.sg/~cs1010/4\\_misc/practice.html](http://www.comp.nus.edu.sg/~cs1010/4_misc/practice.html)

**Week of release:** Week 8

**Objective:** Function with pointer parameters

### Task statement:

Given 3 positive integers  $a$ ,  $b$ ,  $c$  representing the length, width and height of a box, write a function **area\_and\_volume()** to compute the surface area and volume of the box.

Write a program **box.c** to read 2 positive integers  $lower$  and  $upper$ , where  $lower < upper$ . You need not check input validity.

Your program is to count how many boxes with length, width, and height in the range [ $lower$ ,  $upper$ ] such that the surface area is larger than or equal to the volume.

For instance, suppose  $lower = 5$  and  $upper = 7$ . There are 6 boxes whose surface area is larger than or equal to volume:

5×5×5, 5×5×6, 5×5×7, 5×6×6, 5×6×7, and 6×6×6

Note that the boxes 5×6×7, 5×7×6, 6×5×7, 6×7×5, 7×5×6 and 7×6×5 are considered to be the same box.

### Sample runs:

```
Enter upper and lower limits: 5 7
Answer = 6
```

```
Enter upper and lower limits: 4 8
Answer = 22
```