1) Write a program in Python or C++ that calculates the distance to the landing point of a projectile. Calculate distance is based on angle launch (in radians) with an initial velocity of velocity (in feet per second), ignoring air resistance, is given by the formula
 $distance= \frac{velocity^{2} \* sin⁡(2 \* angle)}{32.2}$

To simplify input for the user, your program should allow the angle to be input in degrees. The formula for converting degrees to radians is

$$radians= \frac{degrees\*3.14159265}{180.0}$$

Output result of how far the projectile is from the landing point. If projectile is within a foot, display “Good Job”. Otherwise, display “Please try again”.

2) What is the output of the following program?

#include <iostream>

using namespace std;

int main() {

 int lastNum, numToPrint;

 for (lastNum = 1; lastNum <=10; lastNum++)

 {

 for (numToPrint = 1; numToPrint <= lastNum; numToPrint++)

 cout << numToPrint << ' ';

 cout << endl;

 }

 return 0;

}

3) What is printed by the following program fragment, assuming the input value is 0? (Variables i and n are both type int)

 cin >> n;

 i = 54;

 do

 {

 cout << i << ' ';

 i--;

 } while (i >= n);

4) What is printed by the following program fragment? (row and col are both type int)

 for (row = 1; row <= 20; row++)

 {

 for (col = 1; col <= 20 - row; col++)

 cout << '\*';

 for (col = 1; col <= 2\*row - 1; col++)

 cout << ' ';

 for (col = 1; col <= 20 - row; col++)

 cout << '\*';

 cout << endl;

 }

5) Create the number guessing game between 1-100 that gives 5 tries before showing the number. Create in Python and C++; explain the differences and which you thought was easier to create in.