IPC144 R and S Makeup test.

Name:

Last Name:

Section:

1 - Implement a function called getInt:

int getInt(int\* returnedValue);

getInt receives an integer from user and makes sure the user enters a valid integer. If the integer is valid, it will set the target of returnedValue to the entered integer and return true. If the integer entered is not a valid integer, it will show an error message and ask for the number again. If user fails to enter a valid integer more than 3 times, then it will not change the target of returnedValue and return false.

2- Write a program that receives series of integer numbers from user and at the end prints a statistic report on:

1 - Number of positive numbers.  
2 - Number of negative numbers.   
3 - Number of zeros  
4 - Number of even numbers  
5 - Number of odd numbers.

Program works as follows:

First it will ask the number of integers to receive from user, then it asks for the integers with a prompt containing a sequence number and when all the numbers are entered, it prints the statistic report.

Bonus:   
Use the function implemented in question 1 (getInt) to get the integers and if the User makes a mistake more than 3 times to enter an integer, terminate the program showing an error message.

3- Write a program which computes the distance a car can travel depending on the amount of the gas in the gas tank and it’s speed.[6 marks]

Your program should ask user for two values:

1. The amount of gas in the gas tank in litres.
2. The average speed of the car.

Then the program will print a message indicating the number of kilometres the car can travel before refilling the gas tank.

Use the following assumptions:

1. The rate of gas usage depending to the speed of the car is:

Speed less than 60 km/h, 10 litres in 100 km.

Speed between 61 and 100 km/h, 12 litres in 100 km.

Speed higher than 101 km/h, 14 litres in 100 km.

1. distance = (Gas \* 100)/rate of gas usage.

The program should work like this:

Please enter the amount of gas in gas tank: 25

Please enter the speed of the car: 75

You can refill the gas tank after 208.33 Kilometres.

4- Determine the exact output of the following program[1 mark]:

#include <stdio.h>int main(){ printf("One is %-2dbut, two is \not %05.1f\rnot\ndone!!!",1,3.45); return 0;

}

5- Determine the exact output of the following program[5 mark]:

**#include <stdio.h>**

**void stars(int n){**

**int**

**i;**

**for (i = 0; i<(n / 2); i++){**

**printf("\*");**

**}**

**}**

**/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/**

**void MaybeNewline(int x){**

**if (x % 2){**

**printf("\n");**

**}**

**}**

**/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/**

**int main(){**

**int**

**n = 0,**

**nf;**

**float**

**f;**

**do{**

**if (n){**

**f -= 3.9;**

**n = n + f;**

**}**

**else{**

**nf = f = 10.5;**

**stars(nf--);**

**MaybeNewline(nf);**

**n++;**

**}**

**stars(n);**

**MaybeNewline(nf++);**

**} while (n<9);**

**return 0;**

**}**

6- Determine the exact output of the following program[5 marks]:

**#include <stdio.h>**

**int main(){**

**int**

**i=0,**

**j=32;**

**while(i != 10 && j > 0){**

**if(i < 10){**

**i = i + 3;**

**printf("-%d",i);**

**}**

**else{**

**i = i - 2;**

**printf("2");**

**}**

**if(j != 0){**

**j = j - 8;**

**printf("-%d",j);**

**}**

**if(j%6 == 0){**

**switch(j){**

**case 24:{**

**printf("24");**

**break;**

**}**

**case 18:{**

**printf("18\n");**

**}**

**case 12:{**

**printf("12");**

**break;**

**}**

**case 6:{**

**printf("6");**

**}**

**default:{**

**printf("\*");**

**}**

**}**

**}**

**else{**

**printf("\n");**

**}**

**}**

**return 0;**

**}**