6.096 Introduction to C++
January (IAP) 2009

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

6.096: Introduction to C++   **IAP 2009**

<u>**PROBLEM SET 1 - SOLUTIONS**</u>
(Total points: 108)

<u>Problem 1</u> (7 points)

OUTPUT:

12 35

<u>Problem 2</u> (7 points)
Errors in code: missing second < after cout; missing final quote after \n, missing semicolon after return statement. Corrected code:

```
#include <iostream>
using namespace std;

int main()
{
     cout << "Hello World\n";
     return 0;
}
```

<u>Problem 3</u> (5 points)

```
#include <iostream>
using namespace std;

int main()
{
     cout << "I love C++";
     return 0;
}
```

<u>Problem 4</u> (12 points)

    a) (short) integer
    b) double or float
    c) (long) integer
    d) double or float
    e) char * (NOT char – char is only a single character; only a char * can store a whole string)
    f) boolean (bool)

<u>Problem 5</u> (6 points)

    a) int myAge = 18;

b) double yardArea = 20.5;
c) long numOfStars = 100000000;
d) double avgRain = 15.3;
e) char *myName = "Tanmay";
f) bool success = false;

Problem 6 (16 points)

a. expression, double, constant
b. statement
c. expression, double, neither, 76.8
d. expression, double, neither, 0
e. expression, double, neither, 0.75
f. statement
g. expression, int (or long int), identifier, 4
h. expression , char, constant

Problem 7 (18 points)

```cpp
#include<iostream>
using namespace std;

int main()
{
    int a, b;
    float c;

    cout << "Enter an integer:";
    cin >> a;

    cout << "Enter another integer:";
    cin >> b;

    cout << "Enter a number with decimal:";
    cin >> c;

    cout << "You entered " << a << ", " << b << ", and " << c;

    return 0;
}
```

Problem 8 (20 points)

```cpp
#include <iostream>
using namespace std;

int main()
{
    int initialMiles, finalMiles, milesTraveled;
```

```cpp
    float initialTank, finalTank, fuelUsed, fuelConsumed;

    cout << "Enter the miles on your car's odometer at the start of your journey
\n";
    cin >> initialMiles;

    cout << "Enter the fuel level in your tank at the start of your journey \n";
    cin >> initialTank;

    cout << "Enter the miles on your car's odometer at the end of your journey \n";
    cin >> finalMiles;

    cout << "Enter the fuel level in your tank at the end of your journey \n";
    cin >> finalTank;

    milesTraveled = finalMiles - initialMiles;
    fuelUsed = initialTank - finalTank;
    double milesPerGal = milesTraveled / fuelUsed;

    cout << "You traveled " << milesTraveled << " miles using "
         << fuelUsed << " gallons of fuel \n";

    cout << "Your fuel consumption was " << milesPerGal << " miles per gallon \n";

    return 0;
}
```

Problem 9 (17 points)

```cpp
#include <iostream>
using namespace std;

int main()
{
    const int NUMBER_OF_VARIABLES = 2;
    int x = 100;

    ++x %= NUMBER_OF_VARIABLES;
    x += 2;

    cout << x;

    return 0;
}
```