1. Number the following 4 steps in writing a program in the order they should be done (10 points).

   ANSWERS
   Write the code. 3
   Describe how the program works. 2
   Describe what the program does. 1
   Test the program. 4

2. What does the following print? (3 points each)

   char a[7] = "banana";
   string s = a;
   cout << s;
   cout << int(s.size());
   cout << s[2];
   cout << a + 2;
   cout << char(*a + 2);
   cout << int(*a + 6);
   cout << 3.0 + 4 / 5;
   cout << 'a' + s + a;
   cout << s.substr(2, 3);
   cout << ++*(a + 3);

   ANSWERS
   banana
   6
   nana
   d
   0
   3
   abananabanana
   nan
   b

3. Write a function hyphenate that takes a string and replaces all the spaces with hyphens. For example: (30 points)

   string s = "this is a test";
   hyphenate(s);
   cout << s; // this-is-a-test

   // ANSWER
   void hyphenate(string& s)
   {
     for (int i=0; i<int(s.size()); ++i)
       if (s[i] == ' ')
         s[i] = '-';
   }

4. Write a program that takes a distance in feet and inches as two command line arguments and prints the distance in meters. (1 foot = 12 inches = 0.3048 meters). For example if your program compiles to a.exe then: (30 points)

   a.exe 5 11.5
   1.8161 meters

   // ANSWER
   #include <iostream>
   #include <cstdlib>
   using namespace std;

   int main(int argc, char* argv[])
   {
     cout << 0.3048 * (atof(argv[1]) + atof(argv[2])/12) << " meters\n";
     return 0;
   }