What does each of the following *cout* statements print? (3 pts each)

```
                             ANSWERS
cout << 8 / 3;               2
cout << -11 % 4;             -3
cout << 12 - 2 - 1;          9
cout << 1 * 2 + 3 * 4;       14
cout << 2.9 / 1;             2.9

string s = "elephant";
cout << s[3];                p
cout << s.substr(2, 3);      eph
cout << int(s.size());       8
cout << s + "s";             elephants
cout << s + s;               elephantelephant
```

True or false? (3 pts each)

```
'A' == 'a'                   false
3 < 4 && 4 < 3               false
3 >= 4 || 4 >= 3             true
!3                           false
1 + 3 != 4                   false
```

What do the following print? (5 pts each)

```
for (int i = 10; i < 20; i = i + 2)
  cout << i << ' ';
```

ANSWER: 10 12 14 16 18

```
string s = "x";
while (int(s.size()) < 5)
  s = s + s;
cout << s << '\n';
```

ANSWER: xxxxxxxx

```
int i = 0, j = 0;
do
{
  i = i + 1;
  j = j + 2;
} while (i < 5);
cout << i << " " << j << endl;
```

ANSWER: 5 10

```
int i = 10;
while (true)
{
  if (i % 7 == 0)
    break;
  else
    i = i + 1;
}
cout << i;
```

ANSWER: 14

Suppose the user types **123 456 789** and presses ENTER (12 keystrokes total). What does the following code print? (5 pts).

```
char c;
int i;
string s;
cin >> c >> i >> s;
cout << c << "\n" << i << "\n"
     << s << "\n";
```

ANSWER: 1
**   23**
**   456**

Write a program that prompts for and reads two integers and prints the difference as a positive number regardless of the order of input, as in the following two example runs. (30 pts).

```
Enter 2 integers: 3 7
The difference is 4

Enter 2 integers: 10 2
The difference is 8
```

```
// ONE POSSIBLE ANSWER
#include <iostream>
using namespace std;
int main()
{
  int a, b;
  cout << "Enter 2 integers: ";
  cin >> a >> b;
  cout << "The difference is ";
  if (a > b)
    cout << a - b << endl;
  else
    cout << b - a << endl;
  return 0;
}
```