

1. What does the following code print? (5 pts each)

```
for (int i=2; i>1; i=i*2%5)
    cout << i << " ";
cout << 3/4 + 1.0/2;
int i=1, j=10;
while (i<j)
    cout << --j - ++i << " ";
string s = "test";
s[1] = 'a';
s += 'e';
cout << s;
char c = 'c';
do
    cout << c;
while ((c -= 1) > 'a');
```

ANSWERS
2 4 3
0.5
7 5 3 1 -1
taste
cb

2. Write a program that reads one line of input and prints the number of lowercase vowels (a, e, i, o, u), for example (user input in **bold**): (25 pts)

```
hello world
3
```

```
// ANSWER
#include <iostream>
#include <string>
using namespace std;
int main()
{
    string s;
    getline(cin, s);
    int vowels=0;
    for (int i=0; i<int(s.size()); ++i)
    {
        if (s[i]=='a' || s[i]=='e' ||
            s[i]=='i' || s[i]=='o' ||
            s[i]=='u')
            ++vowels;
    }
    cout << vowels << endl;
    return 0;
}
```

3. Write a program that reads two integers and prints "yes" if either number is a cube of the other, or else "no", for example (25 pts)

```
-125 -5
yes
0 1
no
2 8
yes
// ANSWER
#include <iostream>
using namespace std;
int main()
{
    int a, b;
    cin >> a >> b;
    if (a*a*a == b || b*b*b == a)
        cout << "yes\n";
    else
        cout << "no\n";
    return 0;
}
```

4. Write a program that reads until end of file and prints the longest word. In case of a tie, print the word that occurs first. A word is any sequence of printable characters separated by whitespace. For example: (25 pts)

```
Hello world
this is a test
^Z
The longest word is Hello
```

```
// ANSWER
#include <iostream>
#include <string>
using namespace std;
int main()
{
    string s, longest="";
    while (cin >> s)
    {
        if (int(s.size()) >
            int(longest.size()))
            longest = s;
    }
    cout << "The longest word is "
        << longest << endl;
    return 0;
}
```