

Name \_\_\_\_\_

1. What does the following print? (4 points each)

```
char a[3][4] = {"cat", "dog", "ear"}; ANS.
cout << a[1][2]; g

cout << a[2]; ear

cout << char(a[1][1]+1); p

cout << int(string(a[1]).size()); 3

cout << int(a[1][3]); 0
```

2. Write a function **reverse** that takes a string and returns the string in reverse order. For example: (30 points).

```
string s = "hello";
string t = reverse(s);
cout << t; // olleh

// ANSWER
string reverse(string s)
{
    string t;
    for (int i=int(s.size())-1; i>=0; --i)
        t += s[i];
    return t;
}
```

3. Write a function **equals** that takes a string and a vector<char> and returns true if and only if they have the same length and exactly the same contents. (30 points).

```
// ANSWER
bool equals(string s, vector<char> v)
{
    if (int(s.size()) != int(v.size()))
        return false;
    for (int i=0; i < int(s.size()); ++i)
        if (s[i]!=v[i])
            return false;
    return true;
}
```

4. Write a class **TemperatureConverter** that converts Fahrenheit to Celsius. It should have two public member functions, **setF** to set the temperature in degrees F (as a double) and **getC** to retrieve the temperature in degrees C (as a double,  $C = (F-32)/1.8$ ). Data members should be private. It might be used as in the example below: (20 points).

```
TemperatureConverter tc;
tc.setF(68.0);
double c = tc.getC();
cout << c; // 20.0

// ANSWER
class TemperatureConverter
{
private:
    double temp; // in deg. F
public:
    void setF(double f)
    {
        temp=f;
    }
    double getC()
    {
        return (temp-32)/1.8;
    }
};
```