

Solutions, Exam 0, CSCI 210, Spring 2004

1. `sort words | grep q | head -1`

2.

```
double sumArray(double *values, int values_len) {
    double total;
    int i;

    total = 0.0;
    for(i = 0; i < values_len; i++) {
        total += values[i];
    }
    return total;
}
```

3.

```
5 7
7 7
```

4. 32×2^{12}

5. a. $(-14)^3 = -13$

b. $(-10) \gg 2 = -3$

6.

```
int mult80(int n) {
    return (n << 6) + (n << 4);
}
```

7. a. 00011000

b. $-4.25_{(10)}$

c. $7/16$

d. 00000001, which converts to $1/64$

e. 01101111, which converts to $15.5_{(10)}$

8. Suppose $x = 104$, $y = -104$, and $z = 1$. Then

$$(x + y) + z = (104 + -104) + 1 = 0 + 1 = 1$$

but

$$(x + z) + y = (104 + 1) + -104 = 104 + -104 = 0.$$

(We say $104 + 1 = 104$ because 105 is not representable as an eight-bit floating-point number, and so we must round to 104.)