#  Operators Homework

1. Write a single C statement to accomplish each of the following tasks:

a) Assign the sum of x and y to z and decrement the value of y by 1 after the calculation.

z = x + y--;

b) Multiply num by 3 using the \*= operator.

num \*= 3;

c) Increment variable x by 1, then subtract it from variable value.

value = value - ++x;

d) Add variable x to variable total, then increment x by 1.

total += x++;

2. Show the output produced by each of the following program fragments. Assume that i, j, k are int variables.

a) i = 7; j = 2;

printf("%d %d", i / j, i % j);

3 1

b) i = 4; j = 3;

printf("%d", (i + 10) % j);

2

c) i = 7; j = 8; k = 9;

printf("%d", (i + 10) % k / j);

1

3. Show the output produced by each of the following program fragments. Assume that i, j, k are int variables.

a) i = 7; j = 8;

i \*= j + 3;

printf("%d %d", i, j);

77 8

b) i = j = k = 1;

i \*= j += k;

printf("%d %d %d", i, j, k);

2 2 1

4. Show the output produced by each of the following program fragments. Assume that i, j, k are int variables.

a) i = 4;

j = ++i \* 3 – 2;

printf("%d %d", i, j);

5 13

b) i = 3;

j = 3 – 2 \* i++;

printf("%d %d", i, j);

4 -3

c) i = 2; j = 5;

printf("%d ", i++ - ++j);

printf("%d %d", i, j);

-4 3 6

5. Supply parentheses to show how a C compiler would interpret each of the following expressions.

a) a \* b – c \* d + e (((a \* b) – (c \* d)) + e)

b) a / b % c / d (((a / b) % c) / d)

6. Give the values of i and j after each of the following expression statements has been executed. Assume that i has the value 1 initially and j has the value 2.

a) i += j; 3 2

b) i--; 0 2

c) i \* j / i; 1 2

d) i % ++j; 1 3

7. Use De Morgan’s Laws to write equivalent expressions for each of the following:

a) !( x < 8 ) && !( y >= 3 ) !((x < 8) || (y >= 3))

b) !( x == y ) || !( z != 2 ) !((x == y) && (z != 2))

c) !( ( x <= 3 ) && ( y > 7 ) ) (!(x <= 3) || !(y > 7))

d) !( ( x > 2 ) || ( y <= 4 ) ) (!(x > 2) && !(y <= 4))