#  Selection Homework

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

a) If value is not equal to 42, print "The variable value is not equal to 42."

if (value != 42)

printf("The variable value is not equal to 42. ");

b) Test if the value of the variable num is greater than or equal to 7. If it is, print "Num is greater than or equal to 7."

if ( num >= 7 )

printf("Num is greater than or equal to 7.");

2. What are the values of the following expressions? Remember that C does not use Boolean logic (true or false), but rather uses semi-boolean logic (zero or non-zero). You may assume all variables are declared to be of type int.

a) i = 3;

j = 3;

i - j == 0

non-zero (true)

b) i = 3;

j = 4;

k = 5;

i % j + i < k

non-zero (true)

c) i = 10;

j = 5;

!i < j

1 (true)

d) i = 2;

j = 1;

!!i + !j

1 (true)

e) i = 5;

j = 0;

k = -5;

i && j || k

1 (true)

f) i = 1;

j = 2;

k = 3;

i < j || k

1 (true)

3. What are the values of the following expressions. You may assume all variables are declared to be of type int.

c = 1;

d = -2;

a = 0;

e = 3;

a) (c < d) || a 0 (false)

b) 2 < !d + d 0 (false)

c) !(!(!(!e))) non-zero (true)

4. The following if statement is unnecessarily complicated. Simplify it as much as possible. (Hint: The entire statement can be replaced by a single assignment.)

if (age >= 13)

if (age <= 19)

teenager = true;

else

teenager = false;

else if (age < 13)

teenager = false;

teenager = (age >= 13) && (age <= 19);

5. The mathematical operation:

min(x, y)

can be represented by the conditional expression:

(x < y) ? x : y

In a similar fashion, using only conditional expressions, describe the mathematical operation:

min(x, y, z)

(x < y) ? (x < z ? x : z) : (y < z ? y : z)