Problem FC-7 (3 parts) Compound Logical Predicates

Part A: Turn this compound predicate if-then-else statement into the equivalent nested if-then-else statement which does not use compound predicates (i.e., do not use the && and || operators).

```
if (!((a == 9) || (b>0)) && (c!=8))
        z = 9;
     else
        z = 17;
```

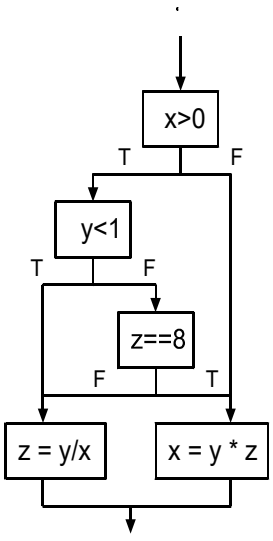
```
if (a!=9)
   if (b<=0)
      if (c!=8)
         z = 9;
      else
         z = 17;
   else
      z = 17;
else
   z = 17;
```

Part B: Write a single C statement that corresponds to the following MIPS code. Assume $1 holds A, $2 holds B, $3 holds C, and $4 holds D. *Do not use an if-then-else*.

```
        bne $3, $0, Set
        bne $1, $0, Reset
        beq $2, $0, Reset
Set:    addi $4, $0, 1
        j Continue
Reset:  addi $4, $0, 0
Continue: ...
```

D = C || (!A && B);

Part C: Write the C code fragment that corresponds to this control flow graph. Where possible, compress nested if-then-else constructs into a flat if-then-else using compound logical predicates.



Equivalent C code fragment:

```
if ((x>0)&& ((y<1)||(z!=8)))
   z = y/x;
else
   x = y*z;
```