PROBLEM 0 b (iii)

1. Root node
   a. initial call to **backtrack**() with x={} and w=1
2. Parent = 1
   a. x = {}
   b. w = 1
   c. X1 = {0, 1}
   d. X3 = {0, 1}
   e. X2 = {0, 1}
   f. Try X1=0
      i. Delta = 1
      ii. After AC-3…
         1. Domains' = {X1: {0}, X2: {1}, X3: {0}}
      iii. Recurse **backtrack**() with X1=0
   g. Try X1=1
      i. Delta = 1
      ii. After AC-3…
         1. Domains' = {X1: {1}, X2: {0}, X3: {1}}
      iii. Recurse **backtrack**() with X1=1
3. Parent = 2
   a. x = {X1: 0}
   b. w = 1
   c. X1 = {0}
   d. X3 = {0}
   e. X2 = {1}
   f. Try X3=0
      i. Delta=1
      ii. After AC-3…
         1. Domains don't change
      iii. Recurse **backtrack**() with X3=0
4. Parent = 3
   a. x = {X1: 0, X3: 0}
   b. w = 1
   c. X1 = {0}
   d. X3 = {0}
   e. X2 = {1}
   f. Try X2=1
      i. Delta=1
      ii. After AC-3…
         1. Domains don't change
      iii. Recurse **backtrack**() with X2=1
5. Parent = 4
   a. x = {X1: 0, X3: 0, X2: 1}

b. w = 1
　　　　c. X1 = {0}
　　　　d. X3 = {0}
　　　　e. X2 = {1}
　　　　f. Complete assignment for x found. Update best and return answer.
6. Parent = 2
　　　　a. x = {X1: 1}
　　　　b. w = 1
　　　　c. X1 = {1}
　　　　d. X3 = {1}
　　　　e. X2 = {0}
　　　　f. Try X3=1
　　　　　　i. Delta=1
　　　　　　ii. After AC-3…
　　　　　　　　1. Domains don't change
　　　　　　iii. Recurse **backtrack**() with X3=1
7. Parent = 3
　　　　a. x = {X1: 1, X3: 1}
　　　　b. w = 1
　　　　c. X1 = {1}
　　　　d. X3 = {1}
　　　　e. X2 = {0}
　　　　f. Try X2=0
　　　　　　i. Delta=1
　　　　　　ii. After AC-3…
　　　　　　　　1. Domains don't change
　　　　　　iii. Recurse **backtrack**() with X2=0
8. Parent = 4
　　　　a. x = {X1: 1, X3: 1, X2: 0}
　　　　b. w = 1
　　　　c. X1 = {1}
　　　　d. X3 = {1}
　　　　e. X2 = {0}
　　　　f. Complete assignment for x found. Update best and return answer.

backtrack() is called a total of **7 times**.

Note: If backtrack() was designed so that it stopped once it found one consistent assignment to the CSP, backtrack() would only be called 4 times.