```
RB-INSERT(T, z)
 1  x = T.root                    // node being compared with z
 2  y = T.nil                     // y will be parent of z
 3  while x ≠ T.nil               // descend until reaching the sentinel
 4        y = x
 5        if z.key < x.key
 6              x = x.left
 7        else x = x.right
 8  z.p = y                       // found the location—insert z with parent y
 9  if y == T.nil
10        T.root = z              // tree T was empty
11  elseif z.key < y.key
12        y.left = z
13  else y.right = z
14  z.left = T.nil                // both of z's children are the sentinel
15  z.right = T.nil
16  z.color = RED                 // the new node starts out red
17  RB-INSERT-FIXUP(T, z)         // correct any violations of red-black properties
```