RED BLACK rules!

ADD

1. Let x be the new node.
2. Color x red.
3. If x is the root, (i.e. if x's parent is NULL), color x black, DONE!
4. If x's parent is black, DONE!
5. If x's uncle is red, color x's parent and uncle black, color x's grandparent red, reassign x to be x's grandparent. RESTART with new x.
6. If x is a direct grandchild, rotate x's parent up once, DONE!
7. Rotate x up twice, DONE!

DELETE

1. Let d be the node you are physically deleting. Let p be d's parent, and x be d's child. (x is NULL if d has no children. If d has two children, then you wouldn't be physically deleting it.)
2. Physically delete d.
3. If d was red, DONE!
4. If x is red, color x black, DONE!
5. If x is now the root, (i.e. if p is NULL), DONE!
6. Let w be x's current sibling. (The child of p that is not x.)
7. If w is red, rotate w up once, RESTART.
8. If w's children are both black, color w red, reassign x to p and p to p's parent, RESTART.
9. If w's direct child is red, color this child black, rotate w up once, DONE!
10. Rotate w's zigzag child up twice, recolor w black, DONE!