Start out by swapping the value to be deleted to the appropriate leaf. Call this node $x$. Pass a pointer to $x$ to `deletionFixUp`. After `deletionFixUp` returns, prune $x$ from the tree.

```java
function deleteFixup(x)
{
    set the height of x to zero //since it will be deleted
    loop
    {
        if (x is the root)
            exit the loop
        else if (parent favors x) //case 1
        {
            set the balance of parent
            x = parent
            //continue looping
        }
        else if (parent has no favorite) //case 2
        {
            set the balance of parent
            exit the loop
        }
        else
        {
            p = parent of x
            z = the sibling of x
            y = favorite of z
            if (y exists and y,z,p are not linear) //case 3
            {
                rotate y to z
                rotate y to p
                set the balance of p
                set the balance of z
                set the balance of y
                x = y
                //continue looping
            }
            else
            {
                rotate z to p //case 4
                set the balance of p
                set the balance of z
                if (y does not exist)
                    exit the loop
                x = z
                //continue looping
            }
        }
    }
}
```

Note that in this pseudocode, there are no references to leftness and rightness. This issue is deferred to the helper functions. For example, determining the linearity of a child, parent, and grandparent could be implemented as:

```java
function linear(c,p,gp)
{
    return (gp.left == p && p.left == c) || (gp.right == p && p.right == c);
}
```