Initially, the root node is empty since no boxes have been added to the region.

Note that because of graphics library weirdness, the origin (0, 0) of the graphics coordinate system is the top left (or northwest) corner, and increasing y values moves down (up is down in graphics).
Sprite 1 is added to the root node. Since the root node has only one sprite in it and the MAX_SPRITES is 2, there is no need to split yet.
Sprite 2 is also added to the root node—still no need to split.
Sprite 3 is added. Now we have a problem, because there are 3 sprites in the root node, but the MAX_SPRITES is 2. Thus, we need to split the root node.
Sprite 3 is added. Now we have a problem, because there are 3 sprites in the root node, but the MAX_SPRITES is 2. Thus, we need to split the root node. We first create new nodes for the north-east, north-west, south-east, and south-west quadrants.
Sprite 3 is added. Now we have a problem, because there are 3 sprites in the root node, but the MAX_SPRITES is 2. Thus, we need to split the root node.

We first create new nodes for the north-east, north-west, south-east, and south-west quadrants.

Next we store each sprite in the nodes that contain it.
Sprite 3 is added. Now we have a problem, because there are 3 sprites in the root node, but the MAX_SPRITES is 2. Thus, we need to split the root node.
We first create new nodes for the north-east, north-west, south-east, and south-west quadrants.
Next we store each sprite in the nodes that contain it.
Finally, we clear the nodes at the root.
**Notice:** Sprite 1 overlaps two of the nodes and so is stored twice. Sprite 3 overlaps all four quadrants and so is stored four times.
Next, we add sprite 4, which only intersects the NE quadrant.
We then add sprite 5. Here again we have a problem, since there are now three items in the NE node. Thus, we need to further divide this node into NE, NW, SE, and SW regions.
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Again, we push the sprites down from the split nodes to the leaves.