prove that rotating right about a node in a BST will result in a BST.

\[ \text{prerotation} \quad \Rightarrow \quad \text{post rotation} \]

only the links in red are new after the rotation, so just need to prove that they do not violate the rules of a BST.

**Sub proof 1:** The link from B to A is valid.
The link from B to A is valid if B < A. B is to the left of A in the prerotation tree so B < A.

**Sub proof 2:** The link from A to E is valid.
The link from A to E is valid if A > E. E is in the left subtree of A in the prerotation tree so A > E.

**Sub proof 3:** The link from P to B is valid.

1. A is a right child of P in the prerotated tree.
Then the link from $P$ to $B$ is valid if $P < B$
$B$ is the right subtree of $P$ in the
prerotation tree so $P < B$

case 2: $A$ is a left child of $P$ in the
prerotated tree

Then the link from $P$ to $B$ is valid if $P > B$
$B$ is in the left subtree of $P$ in the
prerotation tree so $P > B$