14 In this question you must show detailed reasoning.

A disease that affects trees shows no visible evidence for the first few years after the tree is infected.

A test has been developed to determine whether a particular tree has the disease. A positive result to the test suggests that the tree has the disease. However, the test is not 100% reliable, and a researcher uses the following model.

- If the tree has the disease, the probability of a positive result is 0.95.
- If the tree does not have the disease, the probability of a positive result is 0.1.

(a) It is known that in a certain county, A, 35% of the trees have the disease. A tree in county A is chosen at random and is tested.

Given that the result is positive, determine the probability that this tree has the disease. **[3]**

A forestry company wants to determine what proportion of trees in another county, B, have the disease. They choose a large random sample of trees in county B.

Each tree in the sample is tested and it is found that the result is positive for 43% of these trees.

(b) By carrying out a calculation, determine an estimate of the proportion of trees in county B that have the disease. **[4]**