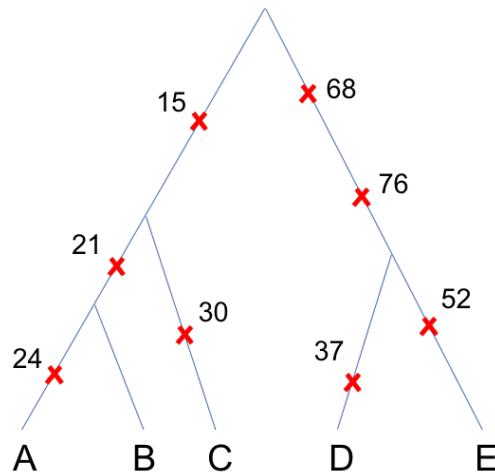


**Introduction to evolutionary trees and mutations**

The tree below shows 5 haplotypes (sequences): A, B, C, D, and E. They could be from the same species or different species. Their evolutionary tree and pattern of mutations are shown below. Each number represents the *index* of a SNP in the genome. Fill in the table below with 0's (ancestral state) and 1's (derived state) to show the SNPs (single nucleotide polymorphisms).



haplotype	15	21	24	30	37	52	68	76
A								
B								
C								
D								
E								

**Vocabulary**

- Haplotype:
- SNP:
- Allele:
- Ancestral:
- Derived:
- Reference:
- Alternate: