

(1) Suppose pointy "elf-like" ears is a dominant trait controlled by a single gene. Large, hairy hobbit feet are recessive and controlled by a single gene.

**If a hobbit (homozygous for hobbit feet) married an elf who was heterozygous for hobbit feet, what type of feet would their children have? *give phenotypic and genotypic ratios.***

(2) If an elf who was heterozygous for hobbit feet and pointy ears had offspring with a hobbit who was heterozygous for pointy ears and had the usual hobbit feet, **what characteristics could you expect in the kids? *give phenotypic and genotypic ratios.***

(3) In middle earth, the long-beard gene in dwarfs is sex-linked, and carried on the X chromosome. Suppose the long-beard condition is dominant, and short beard is recessive.

If a short-bearded female dwarf had offspring with a long-bearded male dwarf, ***what percentage of their female offspring would we expect to have long beards?***

(4) If a short-bearded female dwarf had offspring with a long-bearded male dwarf, ***what percentage of their male offspring would we expect to have long beards?***