

Question 1

You cross 2 snapdragon plants:

Pollen taken from a short plant with red flowers is used to fertilize a tall plant with white flowers.



short



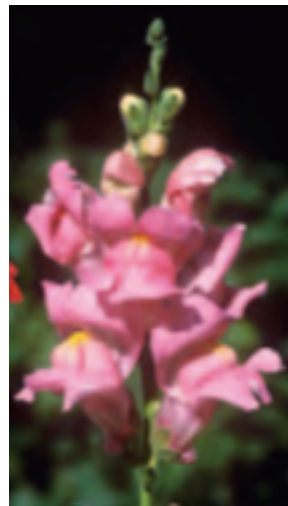
tall (normal size)

All F_1 ($n=34$) plants are tall with pink flowers.

By self-pollination F_1 plants produce F_2 . Describe the phenotype of F_2 plants : size, flower color, relative proportions of each phenotype.

Assume

- R locus determines the flower color
- T locus determines the size
- these 2 loci are not genetically linked

 F_1

tall (normal size)

Question 2 :

A plant is allowed to self-pollinize. Planting the seeds obtained from this plant you observe

12 dwarf plants with white flowers

33 tall plants with white flowers

92 tall plants with red flowers

27 dwarf plants with red flower

What is the genotype of the parental plant? _____

What is the phenotype of the parental plant? _____

Locus T : T allele → tall ; t allele → dwarf

Locus C : C allele → red ; c allele → white

You let one of the 12 dwarf plants with white flowers self-pollinate.
Describe the phenotype(s) of the progeny with the relative proportion for each phenotype:

Question 3:

Adrian's karyotype is 47, XYY. The normal male karyotype is 46, XY.

The chromosomal abnormality is due to

- a. a nondisjunction during meiosis I in Adrian's father
- b. a nondisjunction during meiosis II in Adrian's father
- c. a nondisjunction during meiosis I in Adrian's mother
- d. a nondisjunction during meiosis II in Adrian's mother