

More Monohybrid Cross Problems Key

1. An allele for brown eyes **B** is dominant over an allele for blue eyes **b**. A couple of whom one is brown-eyed and the other blue-eyed have eight children, all brown eyed. What would be the genetic make up of each parent in terms of eye color? For each parent state whether they are homozygous or heterozygous.

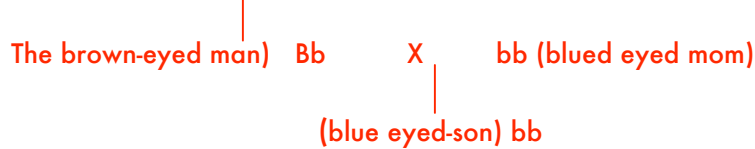
Parents = Bb or BB x bb

If one parent is heterozygous Bb then mating with a bb would probably give us some blue-eyed children (bb). Since all children are brown eyed it is likely that the parents are BB x bb. Each parent is homozygous.

2. A blue-eyed man, both of whose parents were brown-eyed, marries a woman. They have one child who is blue-eyed. What are the genotypes of all the individuals mentioned?

3. A brown-eyed man whose father was brown-eyed and whose mother was blue-eyed married a blue-eyed woman whose father and mother were both brown-eyed. The couple has a blue-eyed son. For which of the individuals mentioned can you be sure of the genotype? What are the genotypes? What genotypes are possible for the others?

Paternal grandfather either BB or Bb x bb (paternal blue-eyed grandmother.



4. A gardener has two tall pea plants. How can the gardener determine whether the two plants are homozygous or heterozygous for the gene determining tallness? Show the two Punnett squares as evidence for your conclusion. What is this type of cross called?

5. In rabbits the allele for black coat color (**B**) is dominant over the allele for brown coat color (**b**). What would be the results of a cross between an animal homozygous, for black coat color (**BB**) and one homozygous for brown coat color (**bb**)? Show the gametes, Punnett square, and phenotypic and genotypic ratios.

BB x bb

BB can only produce B gametes
 bb can only produce b gametes

Results are 100% black coat (phenotype)
 100% heterozygous Bb (genotype)

	b	b
B	Bb	Bb
B	Bb	Bb