

## Genetic Problems

### Show work on each problem!

1. In fruit flies, long wings are dominant over short wings. Use L for the gene for long wings and l for the gene for short wings. Cross a heterozygous long winged male with a heterozygous long winged female.


Genotype Ratio \_\_\_\_\_

Phenotype Ratio \_\_\_\_\_

2. In this plant, the gene for tallness is dominant over the gene for shortness. Cross a homozygous short plant with a heterozygous tall plant.


Genotype Ratio \_\_\_\_\_

Phenotype Ratio \_\_\_\_\_

3. In humans, curly hair is dominant over straight hair. Use C for curly and c for straight. Cross a heterozygous curly haired male with a homozygous recessive straight haired female.


Genotype Ratio \_\_\_\_\_

Phenotype Ratio \_\_\_\_\_

4. If two animals, heterozygous for a single pair of genes are mated and have 200 offspring, what is the probable number of offspring with the **dominant phenotype**?

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5. Cross a heterozygous black fur mouse with a white fur mouse. Out of 168 offspring produced, what will be the probable number of white mice?

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6. In humans, brown hair is dominant over blonde. Cross a homozygous brown hair male with a blonde hair female.



- a. Are there any blonde hair offspring in the first generation? \_\_\_\_\_
- b. Would there be any in the second generation? \_\_\_\_\_

7. A boy wishes to determine whether his black guinea pig is pure black or hybrid black. In guinea pigs, black is dominant over white. The boy selects a white guinea pig to mate to his pig. In the first generation there were 10 guinea pigs out of 20 produced that were white. What was the genotype of his black guinea pig?

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8. In ears of corn purple (P) kernel is dominant to yellow and starchy (S) kernels are dominant to sweet kernels. Cross a heterozygous purple and starchy plant with a yellow, sweet plant. Show the F1 generation.
