

## Genetics Worksheet

### Part 1 Introduction:

- Describe the genotypes given (use your notes). The first two are already done.
 

A. DD <u>homozygous, dominant</u>	D. ss _____
B. Dd <u>heterozygous</u>	E. Yy _____
C. dd _____	F. WW _____
- In humans, brown eye color (B), is dominant over blue eye color (b). What are the **phenotypes** of the following genotypes? In other words, what color eyes will they have?
 

A. BB _____
B. bb _____
C. Bb _____

### The Five (5) Steps Associated With Solving a Genetics Problem:

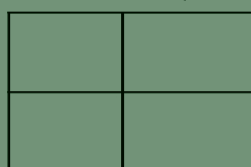
*If you take the time to follow the directions below, you will be able to solve most genetics problems.*

- Determine** the **genotypes** of the parents or whatever is given in the problem.

Try to identify the genotypes of all of the individuals above.

- Is this trait dominant or recessive? Explain your answer.

- Could you have known the genotype of II-3 and II-4 before they had children? If so, what are the parental gametes?



represents the possible combinations that could occur during

**phenotypic ratio** of the offspring.

Determine the **phenotypic** ratio for the offspring.

**Remember, it is a practice problem!**

A black-eyed male mouse is crossed with a red-eyed, female mouse. Predict the

**parents.** The male parent is **heterozygous** which means he has one allele for red eyes and one allele for black eyes. Since his eyes are black, this means that the black allele must be dominant over the red allele. So the male parent's genotype is "**Bb**" (B = allele for black eye, b = allele for red eye).

There is only one way to have this recessive phenotype, so she must be homozygous recessive. Therefore, her genotype must be **bb**. The cross is **Bb x bb**.

- Fill in** the squares. This represents fertilization.

- Write out** the possible **genotypic** ratios.

- Using the **genotypic** ratio determine the **phenotypic** ratio.

### Part 2: Sample Problem (Just read this over)

*A heterozygous male, black-eyed mouse is crossed with a homozygous recessive female, red-eyed mouse. Predict the possible offspring!*

- Step 1: Determine the genotype of the parents.** The male parent has black eyes, so he must have one allele for black eyes and one allele for red eyes. The female parent has red eyes, so she must be homozygous recessive. Her genotype is "**bb**". Therefore, the genotype of the parents is **Bb x bb**.