Genetics Worksheet

Part 1 Introduction:

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

A. DD *homozygous, dominant* D. ss _____

B. Dd _*heterozygous* E. Yy _____

C. dd _____ F. WW _____

2. 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.

1. **Determine** the **genotypes** of the parents or whatever is given in problem.
2. Set up your **Punnett square** as follows: *# sq. based on possible gametes that can be
formed.

possible parental gametes

other possible

parental gametes

Possible gametes

Other possible

parental gametes

3. **Fill in** the squares. This represents the possible combinations that could occur during fertilization.
4. **Write out** the possible **genotypic ratio** of the offspring.
5. **Using** the **genotypic** ratio determine the phenotypic ratio for the offspring.

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Part 2: Sample Problem (Just read this over, it is a practice problem)

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

Step 1: **Determine the genotype of the parents**. The male parent is **heterozygous** which means he has
one allele for black eyes and one allele for red eyes. Since his eyes are black, this means that
black allele must be dominant over the red allele. So the male parents genotype is "**Bb"** (B =
allele for black eye, b = allele for red eye).

The female parent has red eyes, there is only one way to have this recessive phenotype, so she
must to be homozygous recessive. Homozygous recessive means that her genotype must be
"**bb**". Therefore, genotype of the parents is **Bb x bb.**