

NAME _____

Monohybrid Cross Problems – Make a punnet square to show your work.

1. Hornless (H) in cattle is dominant over horned (h). A homozygous hornless bull is mated with a homozygous horned cow. What will be the genotypes and phenotypes of the offspring?

a. What are the possible genotypes and percentages?

b. What are the possible phenotypes and percentages?

2. In tomatoes, red fruit (R) is dominant over yellow fruit (r). A plant that is homozygous for red fruit is crossed with a plant that is heterozygous for red fruit. What will be the genotypes and phenotypes of the offspring?

a. What are the possible genotypes and percentages?

b. What are the possible phenotypes and percentages?

3. In humans, being a tongue roller (R) is dominant over non-roller (r). A man who is a non-roller marries a woman who is heterozygous for tongue rolling.

a. Father's genotype _____ Mother's genotype _____

b. What is the probability of this couple having a child who is a tongue roller? _____

4. In pea plants, round (R) is dominant to wrinkled (r). A heterozygous round female is crossed with a heterozygous round male. Make a Punnett Square to determine the possible offspring.

- a. What are the possible genotypes of the offspring?
- b. What are the possible phenotypes of the offspring?
- c. What is the probability of having an offspring that is round?

- d. What is the probability of having an offspring that is homozygous?

5. In dogs, there is a hereditary deafness caused by a recessive gene, “d.” A kennel owner has a male dog (Gilbert) that she wants to use for breeding purposes if possible. The dog can hear.

- a. What are the two possible genotypes of Gilbert? _____ and _____

b. If the dog’s genotype is **Dd**, the owner does not wish to use him for breeding so that the deafness gene will not be passed on, but if the dogs genotype is **DD** she will use him for breeding. This can be tested by breeding the dog to a deaf female (dd). Draw two Punnett squares to illustrate these two possible crosses. How will she know with certainty if she can use Gilbert for breeding?

