

Practice Quiz: Punnett Squares

B I O L O G Y

Directions: Complete the following Punnett Squares and give the genotypic and phenotypic ratios of the offspring. **You must show your work to receive credit!**

1. Assume that blood type is inherited as A and B dominant over O, but A and B are codominant over each other. Genotypes ($I_A I_A$) and ($I_A i$) are then phenotypically type A, genotypes ($I_B I_B$) and ($I_B i$) are type B, genotype ($I_A I_B$) is type AB, and genotype ($i i$) is type O blood. A man with blood type $I_A I_B$ marries a woman with type $I_A i$ blood. What are the genotypic and phenotypic ratios of the offspring?

Genotypic ratio _____

Phenotypic ratio _____

2. In certain breeds of dogs, deafness is due to a recessive allele (d) of a particular gene, and normal hearing is due to its dominant allele (D). What percentage of the offspring of a normal heterozygous (Dd) dog and a deaf dog (dd) would be expected to have normal hearing? A heterozygous normal dog is crossed with deaf dog. What are the genotypic and phenotypic ratios of the offspring?

Genotypic ratio _____

Phenotypic ratio _____

3. In snapdragons, red (R) is not completely dominant over white (r) flowers. What color flowers would you expect when you cross a red flower with a white flower? What are the genotypic and phenotypic ratios of the offspring?

Genotypic ratio _____

Phenotypic ratio _____

4. In humans, Hunters Syndrome (H) is dominant and normal would be (h). A homozygous recessive individual is normal. A heterozygous man marries a woman who is normal. What are the genotypic and phenotypic ratios of the offspring?

Genotypic ratio _____

Phenotypic ratio _____

5. In humans, colorblindness is a sex-linked trait due to the recessive allele (c), and normal vision is due to the dominant allele (C). What is the expected offspring between a colorblind man and a woman who is heterozygous for colorblindness? Give both genotypic and phenotypic ratios

Genotypic ratio _____

Phenotypic ratio _____

6. In Guinea pigs, the genotype (BB) is black, and the genotype (bb) is white color, and (Bb) is grey color, The gene (B) and (b) are sex-linked. What type of offspring are to be expected in a cross between a black female and a white male?

Genotypic ratio _____

Phenotypic ratio _____