Punnett Square Practice Worksheet

Use the following information for questions 1-3:
    In dogs, the gene for fur color has two alleles.
    The dominant allele (**F**) codes for grey fur and the recessive allele (**f**) codes for black fur.

1)   The female dog is heterozygous.   The male dog is homozygous recessive.
Use a Punnett Square to predict the most likely phenotypic ratio and genotypic ratio of their possible puppies.

2)   The female dog has black fur.   The male dog has black fur.
Use a Punnett Square to predict the most likely phenotypic ratio and genotypic ratio of their possible puppies.

3)   **The female dog is heterozygous. The male dog is heterozygous**.
Use a Punnett Square to predict the most likely phenotypic ratio and genotypic ratio of their possible puppies.

Use the following information for questions 4-6:

    In fruit flies, red eyes are dominant (E).   White-eyes are recessive (e).

4) A female fly has white eyes, and the male fly is homozygous dominant for red eyes.
Use a Punnett Square to predict the most likely phenotypic ratio and genotypic ratio of their possible offspring.

5) A female and male fly are both homozygous dominant for eye color. Use a Punnett Square to predict the most likely phenotypic ratio and genotypic ratio of their possible offspring.

6) If both of the parent flies are heterozygous, use a Punnett Square to predict the most likely phenotypic ratio and genotypic ratio of their possible offspring.

Use the following for questions 7-11:

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. Gilbert can hear.

7) What are the two possible genotypes of Gilbert? _____ and _____

8) 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. This can be tested by breeding the dog to a deaf female (dd). Draw two Punnett squares to illustrate the two possible crosses between Gilbert and the deaf female using the possible genotypes of Gilbert that you gave in number 7.

9) In each case from number 8, what percentage of the offspring would be expected to be able to hear? _____ / to be deaf? _____

10) How will the owner know the genotype of Gilbert?

11) Using a Punnett square, show how two hearing dogs could produce deaf offspring.

Having a widow's peak like Wentworth Miller is dominant.
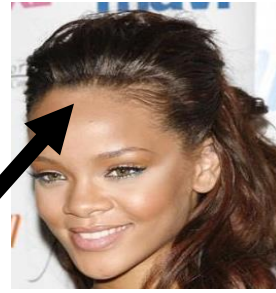
Not having a widow's peak, like Rihanna, is recessive.

12) If Wentworth Miller is heterozygous for a widow's peak, and he and Rihanna have children, use a Punnett Square to predict the most likely phenotypic ratio and genotypic ratio of their possible children.

13) Look at the phenotypes of Beyonce and Jay Z. If these two had children, could they have children with a widow's peak? Why or why not? Use a Punnett Square to explain your answer.