

Punnett Square Practice Worksheet

Name: _____ Hour _____

1) For each of the genotypes below, determine what the phenotype would be.

Purple flowers are dominant to white flowers.

PP _____ Pp _____ pp _____

Hairy knuckles are dominant to non-hairy knuckles in humans.

HH _____ Hh _____ hh _____

Bobtails in cats are recessive. Normal tails are dominant.

TT _____ Tt _____ tt _____

Round seeds are dominant to wrinkled seeds in pea plants.

RR _____ Rr _____ rr _____

No-cleft chin is dominant. Cleft chin is recessive.

CC _____ Cc _____ cc _____

2) For each of the following write whether it is homozygous dominant, heterozygous or homozygous recessive.

AA

Ff

Aa

gg

GG

Pp

Ii

tt

TT

Tt

aa

Oo

Use the following information for questions 3-5:

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.

3) **The female dog is heterozygous. The male dog is homozygous recessive.**

Use a Punnett Square to predict the most likely phenotype ratio and genotype ratio of their possible puppies.

4) **The female dog has black fur. The male dog has black fur.**

Use a Punnett Square to predict the most likely phenotype ratio and genotype ratio of their possible puppies.

5) **The female dog is heterozygous. The male dog is heterozygous.**

Use a Punnett Square to predict the most likely phenotype ratio and genotype ratio of their possible puppies.

Use the following information for questions 6-8:

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

6) A female fly has white eyes, and the male fly is homozygous dominant for red eyes. Use a Punnett Square to predict the percentage of offspring which will probably have red eyes and white eyes

7) A female fly has the EE genotype for eye color. The male fly she mates with also has the EE genotype for eye color. Use a Punnett Square to predict the percentage of offspring which will probably have red eyes and white eyes

8) If both of the parent flies are heterozygous, then what are the possible phenotypes and genotypes of their offspring? Use a Punnett square to make your prediction.

Use the following for questions 9-11:

In dogs, there is an 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.

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

10) 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 these two possible crosses.

11) In each case above, what percentage of the offspring would be expected to be hearing? _____ / deaf? _____

11a) How could you tell the genotype of this male dog?

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

Use the following for questions 12-13:



Having a widow's peak like
Wentworth Miller is dominant.



Not having a widow's peak, like Rihanna, is recessive.

12) If Wentworth Miller has the genotype Aa , and he and Rihanna had children, what are the possible phenotypes and genotypes of their 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.

