

Name: \_\_\_\_\_

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## Codominance Problems

- 1) When a purebred black cat ( $F^B$ ) is mixed with a purebred tan cat ( $F^T$ ) they create a black and tanned cat called a tabby.



- a) What pattern of inheritance is this an example of?
- b) Make a Punnett square showing the resulting genotypes from this cross.

- c) Make a Punnett square for two tabby cats being mixed. What phenotypes are possible? What is the % chance of each?

2. In some chickens, the gene for feather color is controlled by codominance. The allele for black is  $B$  and the allele for white is  $W$ . The heterozygous phenotype is known as erminette.



- a. What is the genotype for black chickens? \_\_\_\_\_
- b. What is the genotype for white chickens? \_\_\_\_\_
- c. What is the genotype for erminette chickens? \_\_\_\_\_

10. If two erminette chickens were crossed, what is the probability that: a. They would have a black chick? \_\_\_\_\_%

b. They would have a white chick? \_\_\_\_\_%

11. A black chicken and a white chicken are crossed. What is the probability that they will have erminette chicks? \_\_\_\_\_%

## Incomplete Dominance Problems

1. There are three phenotypes for a species of moth. Red wings:  $W^R W^R$  Orange wings:  $W^R W^Y$  and Yellow wings:  $W^Y W^Y$

a) How is this an example of incomplete dominance?

b) Make a Punnett square for a red winged moth and an orange winged moth? What are the resulting phenotypes?

c) What are the chances of those moths having a red winged offspring?

2. a) A purebred black mouse ( $F^B F^B$ ) breeds with a purebred white mouse ( $F^W F^W$ ), and black and white fur show **incomplete dominance**. Create a Punnett square to show the cross.

b) What would the resulting possible genotypes and phenotypes be for their babies?

Hint: If you blend black paint with white paint, what colour results?

3. In snapdragons, flower color is controlled by incomplete dominance. The two alleles are red (R) and white (W). The heterozygous genotype is expressed as pink.

a. What is the phenotype of a plant with the genotype  $C^R C^R$ ? \_\_\_\_\_

b. What is the phenotype of a plant with the genotype  $C^W C^W$ ? \_\_\_\_\_

c. What is the phenotype of a plant with the genotype  $C^R C^W$ ? \_\_\_\_\_

d. Show the results of a cross between two PINK flowers. Use a Punnett Square.