Lesson 6.8 Genetics Review

Name

Date Period

Simple Mendelian Inheritance: Complete Dominance

1. In a certain species of dragons, long tails dominate short tails. Cross a heterozygous long tail drake with a short tail dragonette.

A. Use 6.12 to assign Symbols (alleles): __ = _____ and __ = _____

B. Show the cross __ __ x __ __

C. Complete the Punnett square

D. List genotypic percentages

E. List phenotypic percentages

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2. In humans the allele for albinism is recessive to the allele for normal skin pigmentation. Cross two heterozygotes.
Alleles: A = Normal melanin production and a = Albino (abnormal melanin production)

A. Show the cross __ __ x __ __

B. Complete the Punnett square

C. List genotypic ratios

D. List phenotypic ratios

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Dihybrid Crosses *(refer to 6.5 for help)*

3. In a new Skyrim add-on, there is a design your own dragon feature. Mr. Rosenberg mated Odahviing, a drake, and Sahrotaar, a dragonette. Odahviiing was heterozygous for four claws and red eyes, and so was Sahrotaar. Four claws are dominant to three claws and red eyes are dominant to yellow eyes.

A. Use 6.12 to assign alleles for each gene:

Claws: __ = _____ and __ = _____ Eye Color: __ = _____ and __ = _____

B. Show the cross __ __ __ __ x __ __ __ __

C: Complete Punnett Squares, one for each trait

D. Give the genotypic ratios (show your work!)

E. Mr. Rosenberg wanted to get dragons that were 4 claws and yellow eyes. How many out of the first 16 dragons that were born would be expected to have 4 claws and yellow eyes? Show your work.

Non-Mendelian: Incomplete Dominance *(refer to 6.7 for help)*

4. In radishes, the gene that controls color exhibits incomplete dominance. Pure-breeding (homozygous) red radishes crossed with pure-breeding white radishes make a pink radishes. Cross a pink radish with a white radish.
Alleles: R = red and W = white

A. Show the cross __ __ x __ __

B. Complete the Punnett square

C. List genotypic percentages

D. List phenotypic percentages

E. If you ended up with 20 radishes, predict how many (give a number) of them would be white.

Non-Mendelian: Codominance *(refer to 6.6 for help)*

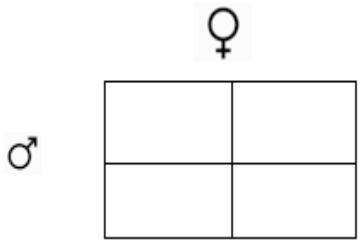
5. Jean was blood type A and she knew her father was blood type O. She married Gene and they wanted to have 8 children! Gene's blood type was AB.

A. Show the cross ___ ___ x ___ ___

B. Complete the Punnett square

C. List genotypic ratios

D. List phenotypic ratios



E. If they ended up having 8 children, predict how many would be blood type A. Show your work.

Non Mendelia: Sex-linked Inheritance *(refer to 6.7 for help)*

6. Fire breathing is a recessive sex-linked condition. Imagine a fire breathing drake has offspring with a carrier dragonette.
Alleles: X^F = non-fire breathing and X^f = fire breathing

A. Show the cross ___ ___ x ___ ___

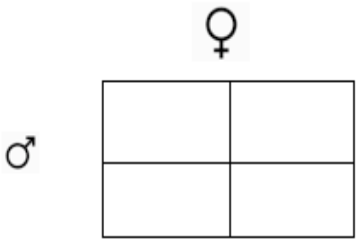
B. Complete the Punnett Square

___/4 or ____% are non-fire breathing females (include noncarrier and carrier)

___/4 or ____% are fire breathing females

___/4 or ____% are non-fire-breathing males

___/4 or ____% are fire breathing males



7. Genes for color-blindness are located on the X-chromosomes in humans. Color blindness (X^n) is a recessive trait and normal vision is dominant (X^N). Jose is not color blinded. He marries Marilyn who is not color blind but her father is. They end up having 4 boys and 4 girls!

A. Show the cross ___ ___ x ___ ___

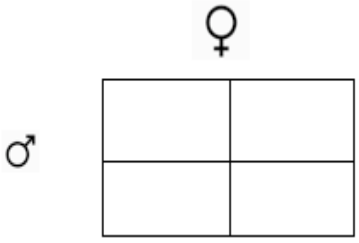
B. Complete the Punnett Square

___/4 or ____% are normal females (include noncarrier and carrier)

___/4 or ____% are colorblind females

___/4 or ____% are normal males

___/4 or ____% are colorblind males



C. How many (give a number) of their children are probably color-blind? Show your work.

D. How many (give a number) of their boys are probably color-blind? Show your work.

E. How many of their girls are most likely carriers for the color-blind trait? Show your work.