

Dominance Practice Problems

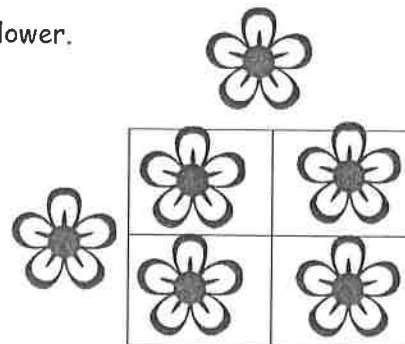
In wildflowers the flower color blue is dominant over the flower color purple. Use this information to complete the following problems.

For all of the following problems make sure to show: 1)Key, 2)Cross, 3)Punnett square #1 fill in as you normally would, 4)Punnett square #2 color the flowers in the correct colors

1. Cross a homozygous blue flower with a heterozygous blue flower.

Key:

Cross:



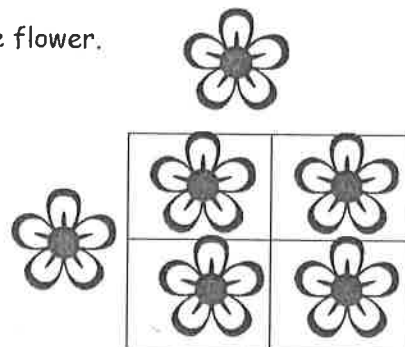
Genotypic ratio:

Phenotypic ratio:

2. Cross a heterozygous blue flower with a homozygous purple flower.

Key:

Cross:



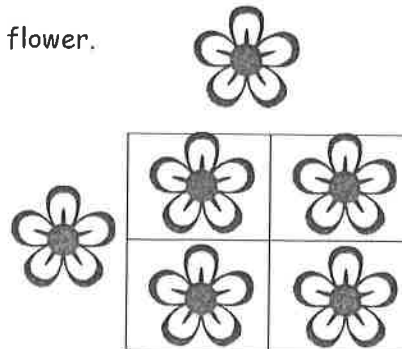
Genotypic ratio:

Phenotypic ratio:

3. Cross a heterozygous blue flower with a heterozygous blue flower.

Key:

Cross:



Genotypic ratio:

Phenotypic ratio:

Incomplete Dominance

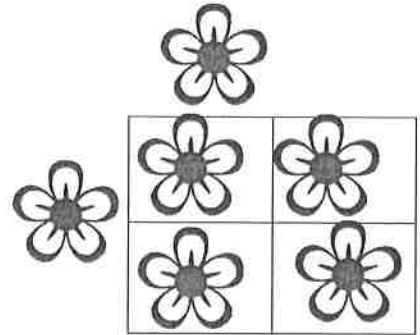
In wildflowers the flower color red is incompletely dominant over the flower color ivory (white). The heterozygous phenotype, thus takes on a pink color (a mix in-between red and white). Use this information to complete the following problems.

For all of the following problems make sure to show: 1)Key, 2)Cross, 3)Punnett square #1 fill in as you normally would, 4)Punnett square #2 color the flowers in the correct colors.

4. Cross a red flower with an ivory flower.

Key:

Cross:



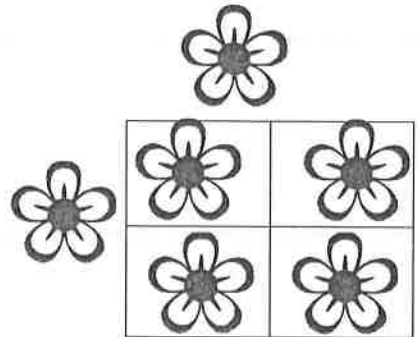
Genotypic ratio:

Phenotypic ratio:

5. Cross a pink flower with a pink flower.

Key:

Cross:



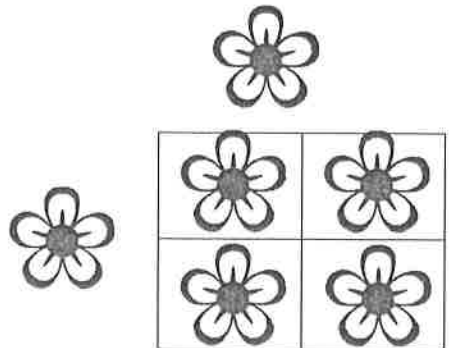
Genotypic ratio:

Phenotypic ratio:

6. Cross a red flower with a pink flower.

Key:

Cross:



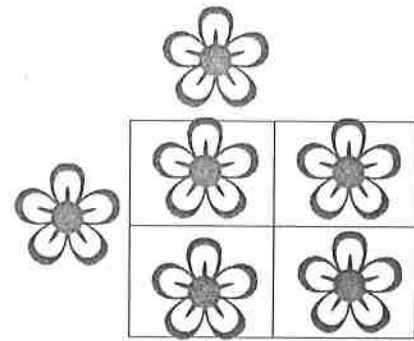
Genotypic ratio:

Phenotypic ratio:

7. Cross an ivory flower with a pink flower.

Key:

Cross:



Genotypic ratio:

Phenotypic ratio:

Codominance

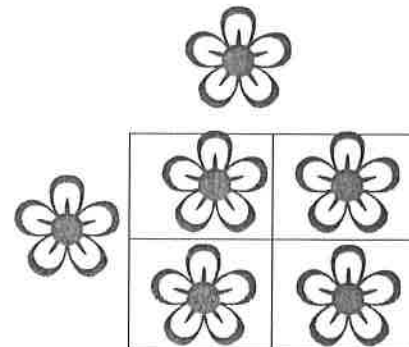
In wildflowers the flower color yellow is codominant with the flower color orange. The heterozygous phenotype produces a "roan" flower (speckled with both yellow and orange dots). Use this information to complete the following problems.

For all of the following problems make sure to show: 1)Key, 2)Cross, 3)Punnett square #1 fill in as you normally would, 4)Punnett square #2 color the flowers in the correct colors.

8. Cross a yellow flower with an orange flower.

Key:

Cross:



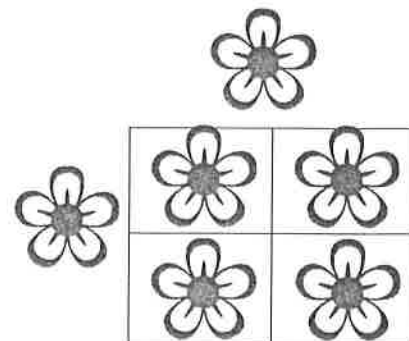
Genotypic ratio:

Phenotypic ratio:

9. Cross a roan flower with a roan flower.

Key:

Cross:



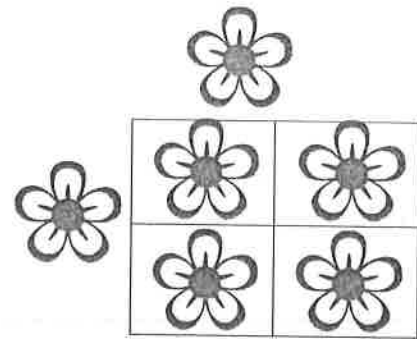
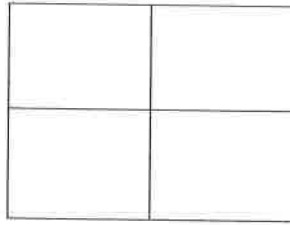
Genotypic ratio:

Phenotypic ratio:

10. Cross a yellow flower with a roan flower.

Key:

Cross:



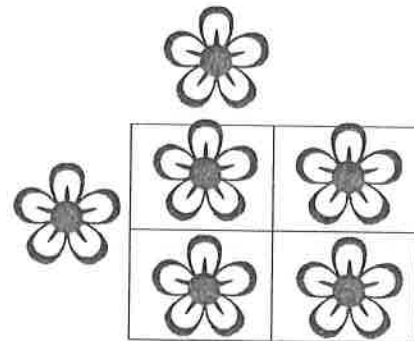
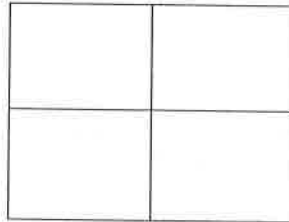
Genotypic ratio:

Phenotypic ratio:

11. Cross an Orange flower with a Roan flower.

Key:

Cross:



Genotypic ratio:

Phenotypic ratio:

Now complete the following table by putting the word **YES** or **NO** in each box

	Normal Dominance	Incomplete Dominance	Codominance
There is a definite dominant trait			
There is a definite recessive trait			
The heterozygous is a mixture of the two traits			
The heterozygous shows both traits at the same time			
The genotypic and phenotypic ratios are always the same			

11.3A

Name: _____

Date: _____

Period: _____

Two-Trait Crosses Part 2

1. Alleles segregate during:
2. RRYy was crossed with rryy: (R = round, r = wrinkled, Y = yellow, y = green)
 - a. What alleles would be in the gametes from the RRYy parent? _____
 - b. What alleles would be in the gametes from the rryy parent? _____
 - c. When the two types of gametes fuse, what is genotype of the offspring? _____
 - d. What is the phenotype of these offspring? _____
3. RrYy was crossed with RrYy: (R = round, r = wrinkled, Y = yellow, y = green)
 - a. List the 4 possible gametes from the RrYy parents: _____, _____, _____, _____
 - b. What proportion of their offspring would be:
round & yellow? _____, round & green? _____,
wrinkled & yellow? _____, wrinkled & green? _____
 - c. What is the predicted ratio between these 4 phenotypes? (A:B:C:D)
4. In horses, black coats (B) and walking gaits (W) are dominant to white coats (b) and pacing gaits (w).



- a. If the male horse is homozygous for both dominant traits, what is his genotype? _____
- b. What alleles would be found in the horse's sperm? _____
- c. If the female horse is homozygous for both recessive traits, what is her genotype? _____
- d. What alleles would be found in the horse's eggs? _____
- e. Construct a Punnett square chart to show the possible offspring from the mating of these two horse types.

5. Now examine the results of mating two horses from the F1 generation.

- a. What is the genotype of the male horse? _____
- b. What alleles would be contained in his gametes? (To construct all possible gametes, try the foil method used in algebra – first, outer, inner, and then last. Show 4 possible gametes resulting from meiosis)

_____, _____, _____, _____

- c. What is the genotype of the female horse? _____
- d. What alleles would be contained in her gametes?

_____, _____, _____, _____

- e. Construct a Punnett square chart to show the possible offspring from the mating of these two horse types.



- f. List the genotypic ratio of the possible offspring in the F2 generation:

___ BBWW	___ BbWW	___ bbWW
___ BBWw	___ BbWw	___ bbWw
___ BBww	___ Bbww	___ bbww

- g. List the phenotypic ratio of the possible offspring in the F2 generation:

___ black walkers
___ black pacers
___ white walkers
___ white pacers

- h. Conclusion: Which horse type(s) would be most likely to occur during the F2 generation?
- i. Why would this be helpful to horse breeders?