

SECTION 9-2 REVIEW

GENETIC CROSSES

VOCABULARY REVIEW Define the following terms, and provide one example for each.

1. complete dominance _____

2. incomplete dominance _____

3. codominance _____

MULTIPLE CHOICE Write the correct letter in the blank.

- _____ 1. The appearance of an organism is its
 a. genotype. b. phenotype. c. genotypic ratio. d. phenotypic ratio.
- _____ 2. A genetic cross performed many times produces 798 long-stemmed plants and 266 short-stemmed plants. The probability of obtaining a short-stemmed plant in a similar cross is
 a. 266/1,064. b. 266/798. c. 798/266. d. 798/1,064.
- _____ 3. A monohybrid cross of two individuals that are heterozygous for a trait exhibiting complete dominance would probably result in a phenotypic ratio of
 a. 4 dominant:0 recessive. c. 3 dominant:1 recessive.
 b. 1 dominant:3 recessive. d. 1 dominant:1 recessive.
- _____ 4. To determine the genotype of an individual that shows the dominant phenotype, you would cross that individual with one that is
 a. heterozygous dominant. c. homozygous dominant.
 b. heterozygous recessive. d. homozygous recessive.
- _____ 5. In a dihybrid cross between an individual with the genotype *RRYY* and an individual with the genotype *rryy*, all of the offspring will have the genotype
 a. *RRYY*. b. *RrYY*. c. *RrYy*. d. *rryy*.

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SHORT ANSWER Answer the questions in the space provided.

1. What is the difference between a homozygous individual and a heterozygous individual?

2. If the probability that a specific trait will appear in the F₂ generation is 0.25, how many individuals would be expected to show that trait in an F₂ generation consisting of 80 individuals?

3. A homozygous dominant individual (AA) is crossed with an individual that is heterozygous for the same trait (Aa). What are the possible genotypes of the offspring, and what percentage of the offspring is likely to show the dominant phenotype? _____
4. **Critical Thinking** Some animals, such as cows, normally produce only one offspring from each mating. If a cow showed a dominant phenotype, why would a typical testcross be a difficult way to determine the genotype of that animal? _____

STRUCTURES AND FUNCTIONS Write the possible genotypes of the offspring in the Punnett square below. Then answer the questions in the spaces provided.

A plant with the genotype *WwRr* is crossed with another plant with the same genotype.

		<i>WwRr</i>			
		<i>WR</i>	<i>Wr</i>	<i>wR</i>	<i>wr</i>
<i>WwRr</i>	<i>WR</i>				
	<i>Wr</i>				
	<i>wR</i>				
	<i>wr</i>				

1. What proportion of the offspring will be dominant for both traits?

2. What proportion of the offspring will have the same genotype as their parents?

3. What proportion of the offspring will be homozygous dominant for both traits?

4. What proportion of the offspring will be homozygous recessive for both traits?

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