

Name \_\_\_\_\_

Block \_\_\_\_\_

## COMPLETE DOMINANCE PRACTICE 2

1. Are the following genotypes homozygous or heterozygous?

TT \_\_\_\_\_

Bb \_\_\_\_\_

aa \_\_\_\_\_

2. If T is the dominant allele for tall and t is the recessive allele for short, list the **phenotypes** of the following allele combinations:

Tt \_\_\_\_\_

TT \_\_\_\_\_

tt \_\_\_\_\_

3. In pea seeds, the yellow allele (Y) is dominant and the green (y) allele is recessive. Determine the probability of all possible genotypes and phenotypes in the possible offspring.

- a. Heterozygous yellow (x) heterozygous yellow

Parent Genotypes: \_\_\_\_\_

Punnett Square:

|   |   |   |
|---|---|---|
|   | — | — |
| — | — | — |
| — | — | — |

Probability of All Possible Genotypes & Phenotypes:

- b. Heterozygous (x) homozygous green

Parent Genotypes: \_\_\_\_\_

Punnett Square:

|   |   |   |
|---|---|---|
|   | — | — |
| — | — | — |
| — | — | — |

Probability of All Possible Genotypes & Phenotypes:

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c. Homozygous yellow (x) green

Parent Genotypes: \_\_\_\_\_

Punnett Square:

|   |   |   |
|---|---|---|
|   | — | — |
| — | — | — |
| — | — | — |

Probability of All Possible Genotypes & Phenotypes:

4. In garden peas, tall is dominant to short. What is the probability of a short plant offspring if a homozygous tall plant is crossed with a short plant? Probability of a tall plant offspring?

Parent Genotypes: \_\_\_\_\_

Punnett Square:

|   |   |   |
|---|---|---|
|   | — | — |
| — | — | — |
| — | — | — |

Probability of a short offspring plant: \_\_\_\_\_

Probability of a tall offspring plant: \_\_\_\_\_

5. In humans, let's say that the gene for brown eyes is dominant over the gene for blue eyes. A brown eye man married a blue eyed woman and their first child was blue eyed. What is the man's genotype? How do you know?

Parent Genotypes: \_\_\_\_\_

Punnett Square:

|   |   |   |
|---|---|---|
|   | — | — |
| — | — | — |
| — | — | — |

What is the man's genotype? How do you know?

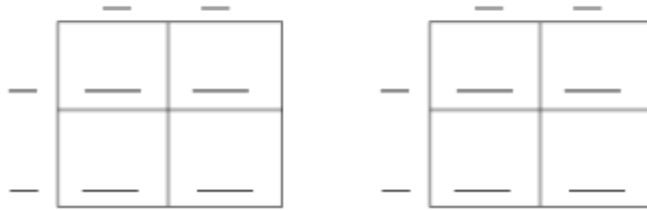
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6. In rats, black fur is dominant (B) over white fur (b). A geneticist has a black rat and needs to figure out whether it is homozygous (BB) or heterozygous (Bb). Besides a DNA analysis, what could the geneticist do to determine the genotype? Show punnett squares to support your answer.

How can the geneticist figure out the black fur rat's genotype?

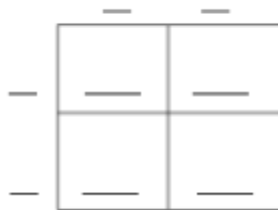
Punnett Square Evidence:



7. In humans, brown hair is dominant over blonde hair. If a homozygous brown haired man marries a blonde woman, what is the probability that their child will be blonde?

Parent Genotypes: \_\_\_\_\_

Punnett Square:

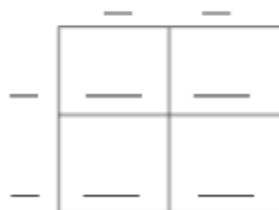


Probability that their children will be blond: \_\_\_\_\_

8. Albinism, the total lack of pigment, is due to a recessive gene. A man and a woman plan to marry and they want to know what the probability is of them having an albino child. Both are normally pigmented but each has an albino parent.

Parent Genotypes: \_\_\_\_\_

Punnett Square:



Probability of the couple having an albino child: \_\_\_\_\_