

Directions: For each of the following problems,

1. List the genotypes of the parents.
 2. Diagram and complete a Punnett square
 3. Give the phenotype percentages of the offspring.
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1. In garden peas, round seed coats (**R**) is dominant over wrinkled seed coats (**r**). What will the results be of a cross between a homozygous dominant male and a recessive female.
 2. In peas, yellow color (**Y**) is dominant to green (**y**). What will be the results of a cross-pollination of a heterozygous female and a heterozygous male?
 3. In humans, straight toes (**S**) is dominant over curled toes (**s**). What would be the result of a cross between a recessive male and a heterozygous female?
 4. In dogs, erect ears (**E**) is dominate over droopy ears (**e**). What are the results if two heterozygous dogs have a litter of puppies.
 5. The ability to roll the tongue (**R**) is determined by a dominant gene while the recessive gene results in the inability to roll the tongue (**r**). A man and his wife can both roll their tongues and are surprised to find that their son cannot. Explain this by showing the genotypes of all three persons. (Note: you do not need to do a Punnett Square for this problem).
 6. In humans, wavy hair (**CS**) results by the co-dominant situation of curly hair (**C**) and straight hair (**S**). What are the possible results if a curly-haired man and wavy-haired woman have children.
 7. In iris, purple (**p**) is incompletely dominant over white (**w**). What would be the results of a cross if both parents were pale lavender (heterozygous-pw)?
 8. In crocus flowers, white (**W**) and purple (**P**) colors are co-dominant, and result in a purple and white striped flower when both genes are present. What are the possible results from the cross-pollination of a striped crocus with a white crocus?
 9. In cattle, red (**r**) is incompletely dominant over white (**w**) hides. Roan is the name of the color that results from incomplete dominance. What are the possible results if a white male mates with a roan female?
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The following Punnett squares show the results of four different crosses Gregor Mendel made with pea plants. In this case, Mendel was looking at flower color with Red (R) being dominant over white (r). For each of the results listed below, write down which cross (Punnett Square) applies.

1.

| | | |
|---|----|----|
| | R | R |
| r | Rr | Rr |
| r | Rr | Rr |

2.

| | | |
|---|----|----|
| | R | R |
| R | RR | RR |
| r | Rr | Rr |

3.

| | | |
|---|----|----|
| | R | r |
| R | RR | Rr |
| r | Rr | rr |

4.

| | | |
|---|----|----|
| | R | r |
| r | Rr | rr |
| r | Rr | rr |

- He crossed a red flowered plant with a white flowered plant. His results were 126 red flowering plants and 122 white flowered plants. Which Punnett Square applies? _____
- He crossed a red flowered plant with a white flowered plant. His results were 307 red flowering plants and 0 white flowered plants. Which Punnett Square applies? _____
- He crossed a red flowered plant with a red flowered plant. His results were 306 red flowering plants and 110 white flowered plants. Which Punnett Square applies? _____
- He crossed a red flowered plant with a red flowered plant. His results were 300 red flowering plants and 0 white flowered plants. Which Punnett Square applies? _____