Assignment Number \_\_\_\_\_\_\_\_\_\_\_

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Hour:\_\_\_\_\_\_\_\_\_\_\_

**Simple Genetics Practice Problems**

1. For each genotype, indicate whether it is **heterozygous** (HE) or **homozygous dominant** (HO-D) or **homozygous recessive** (HO-R)

|  |  |  |  |
| --- | --- | --- | --- |
| AA \_\_\_\_Bb \_\_\_\_Cc \_\_\_\_Dd \_\_\_\_ | Ee \_\_\_\_ff \_\_\_\_GG \_\_\_\_ HH \_\_\_\_ | Ii \_\_\_\_Jj \_\_\_\_kk \_\_\_\_Ll \_\_\_\_ | Mm \_\_\_\_nn \_\_\_\_OO \_\_\_\_Pp \_\_\_\_ |

2. For each of the genotypes below, determine the **phenotype**.

|  |  |
| --- | --- |
| *Purple flowers are dominant to white flowers*PP \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Pp \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_pp \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  | *Brown eyes are dominant to blue eyes*BB \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Bb \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_bb \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| *Round seeds are dominant to wrinkled*RR \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Rr \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_rr \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | *Bobtails are recessive (long tails dominant)*TT \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Tt \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_tt \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

3. For each phenotype, list the **genotypes**.

|  |  |
| --- | --- |
| *Straight hair is dominant (S) to curly (s).*\_\_\_\_\_\_\_\_\_\_\_\_ straight\_\_\_\_\_\_\_\_\_\_\_\_ straight\_\_\_\_\_\_\_\_\_\_\_\_ curly | *Pointed heads are dominant(P) to round heads(p).*\_\_\_\_\_\_\_\_\_\_\_\_ pointed\_\_\_\_\_\_\_\_\_\_\_\_ pointed\_\_\_\_\_\_\_\_\_\_\_\_ round |

4. Set up the square for each of the crosses listed below. The trait being studied is round seeds (dominant) and wrinkled seeds (recessive)

|  |  |  |
| --- | --- | --- |
| Rr x rr | http://www.biologycorner.com/resources/punnett_blank.gif | What percentage of the offspring will be round? \_\_\_\_\_\_\_\_\_\_\_ |
| Rr x Rr | http://www.biologycorner.com/resources/punnett_blank.gif | What percentage of the offspring will be round? \_\_\_\_\_\_\_\_\_\_\_ |
| RR x Rr | http://www.biologycorner.com/resources/punnett_blank.gif | What percentage of the offspring will be round? \_\_\_\_\_\_\_\_\_\_\_ |

**Practice with Punnett Squares. Show all work!**

5. A TT (tall) plant is crossed with a tt (short plant).
What percentage of the offspring will be tall? \_\_\_\_\_\_\_\_\_\_\_

6. A Tt plant is crossed with a Tt plant. What percentage
of the offspring will be short? \_\_\_\_\_\_

7. A heterozygous round seeded plant (Rr) is crossed with a
homozygous round seeded plant (RR). What percentage of
the offspring will be homozygous (RR)? \_\_\_\_\_\_\_\_\_\_\_\_

8. A homozygous round seeded plant is crossed with a homozygous
wrinkled seeded plant. What are the genotypes of the parents?
\_\_\_\_\_\_\_\_\_\_ x \_\_\_\_\_\_\_\_\_\_

What percentage of the offspring will also be homozygous? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

9. In pea plants purple flowers are dominant to white flowers.
If two white flowered plants are cross, what percentage of their
offspring will be white flowered? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

10. A white flowered plant is crossed with a plant that is
heterozygous for the trait. What percentage of the
offspring will have purple flowers? \_\_\_\_\_\_\_\_\_\_\_\_\_