

Quiz Remediation

Turn in this worksheet, complete and correct, by November 16, 2018, and I will increase your failing quiz grade to passing (65%) or add 5 points to an already passing grade. You're not required to do this – it is just a way of remediating your quiz grade. I do not recommend waiting until the 16th to turn it in because if you do not get a 100% on this paper, you get no bonus points. However, if you turn it in early, I can look at it, tell you what is wrong, and you can revise it.

1. In purple people eaters, one-horn is dominant and no horns is recessive. A male with horns and a female with no horns have four children. Two of them have horns and two do not. What is the genotype of the father?
2. Tall is dominant to short in plants. If you began by crossing a homozygous tall plant with a homozygous short plant, how many generations would it take to start getting 100% short plants?
3. In guinea pigs, the allele for short hair is dominant. A long-haired male guinea pig and a heterozygous short-haired female are kept in the same cage and mate numerous times, ultimately producing 32 total offspring. How many offspring will have long hair?

4. Two short haired guinea pigs are mated several times. Out of 100 offspring, 25 of them have long hair. What are the probable genotypes of the parents?

5. In a Punnett square, what do the letters inside the boxes represent?

6. Tom and Tina decided they wanted to start a family. Tom knew his grandfather had sickle-cell disease. Sickle-cell disease is a recessive disorder that causes blood cells to stiffen and take on a crescent shape. These blood cells have a difficult time moving through the blood vessels and can cause health problems. Tina didn't know of any family members that had it. Still, before they got pregnant they both went to the doctor for genetic tests. The doctor found that even though Tom and Tina were healthy, they both carried the gene for sickle-cell disease. Make a Punnett Square to determine the probability of Tom and Tina's child having sickle-cell disease.

7. Some cattle are naturally hornless, a condition called "polling". Polling is dominant over the more common horned trait. A polled bull is mated with three cows with the following offspring:
 - Cow A (horned) = polled calf
 - Cow B (horned) = horned calf
 - Cow C (polled) = horned calf

What are the genotypes of the four parents?