



2022 NATIONAL FFA HORSE EVALUATION

TEAM PRACTICAL ACTIVITY #4

Equine Genetics and Reproduction(10 points per question) 50 points

As a team, review the following questions; you will have 10 minutes for this activity. One team member should mark each answer on the team E-scan sheet.

1. The mating of animals from different families or lines from the same breed is called?
 - A. Outcrossing
 - B. Inbreeding
 - C. Line Crossing
 - D. Grading Up
 - E. Cross Breeding

2. The mating of horses from different breeds to develop hybrid vigor is called?
 - F. Outcrossing
 - G. Inbreeding
 - H. Line Crossing
 - I. Grading Up
 - J. Cross Breeding

To determine the percentage of genes from another horse

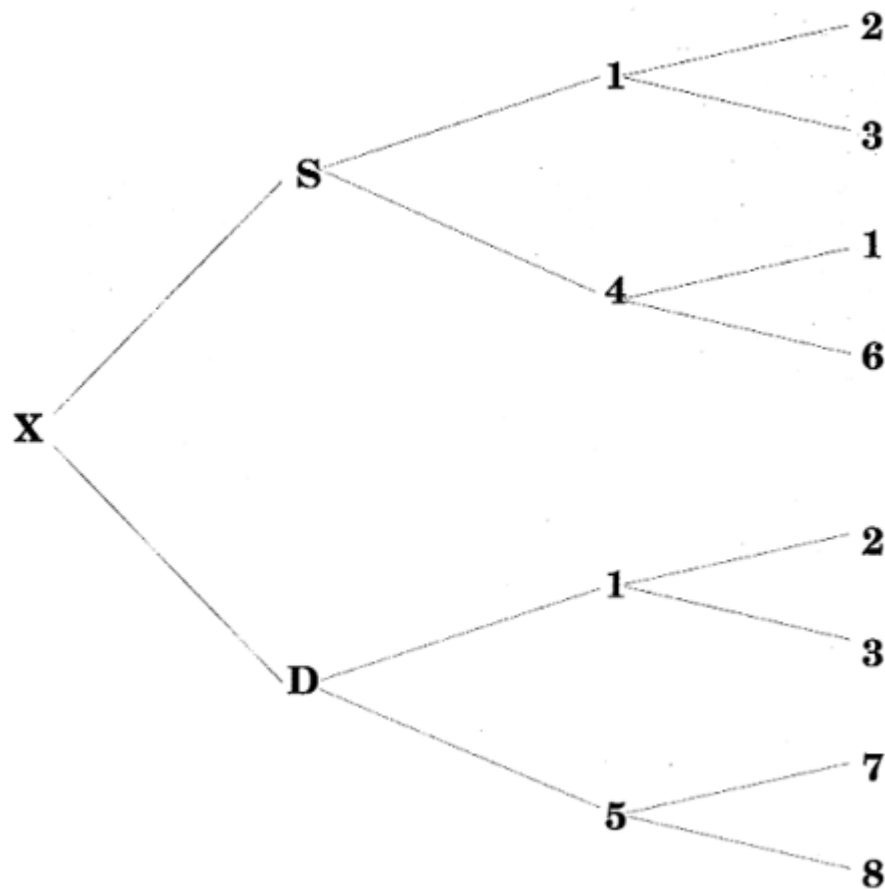
Usually, the relationship of the product (X) to any outstanding ancestors is determined first. This tells the probable proportion of genes X has from that ancestor. Every individual obtains half its genes from each parent. Therefore, for each generation, an individual is separated from another, and the genetic effect is halved. Parents contribute one-half ($1/2$) each, grandparents one-fourth ($1/4$), and great-grandparents one-eighth ($1/8$). To calculate the relationship, add all the pathways from the horse of interest to the ancestor of interest. The number of pathways is used as an exponent for one-half for each pathway.

Parent= 0.500

Grandparent= 0.250

Great Grandparent- 0.125

3. Using the information above and the diagram below, what is the probable proportion of X's genes that came from 1?



- A. 0.750
- B. 0.650
- C. 0.500
- D. 0.625
- E. 0.250

4. Largely affecting the American Quarter Horse and American Paint Horse, HYPP is a disease which makes horses susceptible to unexpected paralysis or muscle tremors. This disease is directly associated with a single line of American Quarter Horses. AQH breeders look for heavily muscled horses, breed to that line, and can end up with a horse with a severe genetic disease. The genetic allele for HYPP is H/H for horses that will display episodes of hyperkalemic periodic paralysis. If you cross a stallion that is N/H with a mare that is N/H, what is the percentage chance the foal will be H/H? You can use the Punnett Square to check your work

- A. 25%
- B. 50%
- C. 75%
- D. 100%
5. You want to breed your Chestnut Mare with Phenotypes eeAa to a black stallion Eeaa, what is the percentage chance you will get a Red offspring ee/Aa or ee/aa? You can use the Punnett Square to check your work.

- A. 25%
- B. 50%
- C. 75%
- D. 100%