##### **Monohybrid Cross Questions**

1) Determine the genotypic ratio in a cross between a heterozygous tall plant and a homozygous tall plant (tall is dominant over short).

2) What is the probability of producing a tall plant when a homozygous short plant is crossed with a heterozygous plant (tall is dominant over short)?

3) Find the ratio of black to white guinea pigs in the F2 when a purebred black (B) guinea pig is mated with a purebred white (b) guinea pig.

4) Albinism is the absence of skin pigmentation and is a recessive trait found in humans and other animals. In the human population, about 1/20,000 individuals have albinism. Normal pigmentation

(A) is dominant to albinism (a). If an albino individual and a homozygous normal individual have children, what is the likelihood that one of their children will display albinism?

5) An individual with normal pigmentation has children with an individual with albinism and their first child is an albino. What are the genotypes of the parents?

6) A common squash in Texas is the Yellow Crooked-Neck squash. This fruit is a source of vitamins A, B, and C. It also contains calcium and iron. Yellow coloured squash is recessive to white coloured squash. If a yellow squash is crossed with a heterozygous squash, what are the predicted genotypes and phenotypes of the offspring?

7) Polydactylous cats have more than five digits (fingers/toes). In fact, Earnest Hemingway (a famous author) is credited with establishing a large colony of about 50 feral polydactylous cats in the Florida Keys. One of his cats, Princess, appeared in the *New York Times*. The polydactyl allele is dominant over the allele for five digits. Predict the offspring of a mating between a heterozygous polydactylous cat and a homozygous recessive cat.

8) In cattle, the polled hornless condition (H) is dominant over the recessive horned condition (h). A heterozygous polled bull breaks out of his pen and mates with the following three cows:

i) a homozygous dominant polled hornless cow,

ii) a horned cow, and

iii) a heterozygous polled hornless cow.

What is the probability that all offspring will be horned?

9) A cross between two pea plants heterozygous for a single trait produce 60 offspring. Approximately how many of the offspring would be expected to exhibit the recessive trait?