

Solutions

2.1 B In a simple monohybrid cross $Aa \times Aa$, gametes carry A or a. Combining independent gametes gives AA, Aa, Aa and aa. The predicted probabilities describe many possible fertilizations, not a fixed order of children.

2.2 Aa gives A or a with equal probability; aa gives only a. $P(aa)=1/2=50\%$.

2.3 False. A dominant allele can be rare. Mutation is a source of new variation; selection changes the relative success of existing variants rather than directing mutations toward a goal.

2.4 allele. allele means A variant of a gene.

3.1 $(1/2)^2=1/4$. Mendelian probabilities describe repeated independent outcomes; a family need not contain one child of each phenotype. State complete dominance and independence.