

3. In fruit flies (*Drosophila melanogaster*), straight wing shape is dominant to curly wing shape. A particular population of fruit flies is in Hardy-Weinberg equilibrium with respect to the alleles for wing shape.

The Hardy-Weinberg equation, given below, is useful in understanding population genetics:

$$p^2 + 2pq + q^2 = 1$$

- (a) **Explain** what the terms (p^2 , $2pq$, and q^2) represent in the population of fruit flies.
(b) **Describe** one condition that is necessary for the population to be in equilibrium.

GO ON TO THE NEXT PAGE.