Genetics Pre Quiz #2

Biology

A biologist mates two fruit flies. The female is wild type (completely normal appearance in every respect). The male has no legs.

There are about 1600 offspring. All of the offspring are wild type.

The biologist then mates two of the offspring. There are an additional 1600 flies that hatch from the second breeding. The offspring of this breeding show a rate of around 75% (around 1200) wild type and the remaining 25% of the flies have no legs. There are no differences in the proportion of mutants between males and females.

Draw the Punnett Squares that illustrate these crosses. Then answer the following questions:

1. Is the mutant trait dominant or recessive?
2. Is the mutant trait sex-linked or autosomal?
3. What were the genotypes of the parents of the initial cross?
4. What were the genotypes of the parents of the second cross?