


Section 12–4 Mutations (pages 307–308)

 **TEKS FOCUS:** 6C Identify and illustrate how changes in DNA cause mutations, and evaluate significance of these changes

This section describes and compares gene mutations and chromosomal mutations.

Introduction (page 307)

1. What are mutations? _____

2. Is the following sentence true or false? Chromosomal mutations result from changes in a single gene. _____

Kinds of Mutations (pages 307–308)

3. Mutations that occur at a single point in the DNA sequence are _____ mutations.
4. A mutation involving the insertion or deletion of a nucleotide is a(an) _____ mutation.
5. Complete the compare-and-contrast table of types of chromosomal mutations.

CHROMOSOMAL MUTATIONS

Type	Description	Examples
		ABC•DEF → AC•DEF
Duplication		
	Part of a chromosome becomes oriented in the reverse of its usual direction	
Translocation		

6. Circle the letter of each sentence that is true about gene mutations.
- a. Point mutations affect just one nucleotide.
 - b. The substitution of one nucleotide for another in the gene never affects the function of the protein.
 - c. Point mutations that involve the insertion or deletion of a nucleotide change the reading frame of the genetic message.
 - d. Frameshift mutations affect every amino acid that follows the point of the mutation.

Significance of Mutations (page 308)

7. Mutations that cause dramatic changes in protein structure are often _____.
8. Mutations are a source of _____ in a species.
9. What is polyploidy? _____
- _____
- _____