Name_____ Class_____ Date_____

Section 12–4 Mutations (pages 307–308)

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

Туре	Description	Examples	
		ABC•DEF → AC•DEF	
Duplication			
	Part of a chromosome becomes oriented		
Translocation			

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Namo			
INAME			

- 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?