Example 1

Find the union and intersection of each pair of sets.

1. $A = \{10, 12, 14, 16\}$; $B = \{9, 10, 11, 12\}$

2. A is the set of positive prime numbers less than 10; B is the set of whole-number factors of 10.

Example 2

Find the complement of set A in universe U.

3. $U = \{-5, -4, -3, -2, -1, 0, 1, 2\}$; $A = \{-1, 0, 1\}$

4. U is the set of whole numbers less than 10; A is the set of perfect squares less than 10.

Example 3

Determine whether each statement about the sets is true or false. Use a Venn diagram to support your answer.

5. A is the set of whole-number factors of 9, and B is the set of whole-number factors of 16. Statement: $A \cap B = \varnothing$

6. A is the set of perfect squares, and B is the set of whole numbers. Statement: $A \subseteq B$

Example 4

7. **Business** The set $W = \{30, 32, 34, 36, 38, 40, 42\}$ represents the waist sizes in inches of men's jeans sold at a clothing store. The set $I = \{28, 30, 32\}$ represents the possible inseam lengths in inches of the jeans. Find $W \times I$ to determine all sizes of jeans sold at the store.