

**LESSON**  
**2-4**

## Practice B

### *Biconditional Statements and Definitions*

**Write the conditional statement and converse within each biconditional.**

1. The tea kettle is whistling if and only if the water is boiling.

Conditional: \_\_\_\_\_

Converse: \_\_\_\_\_

2. A biconditional is true if and only if the conditional and converse are both true.

Conditional: \_\_\_\_\_

Converse: \_\_\_\_\_

**For each conditional, write the converse and a biconditional statement.**

3. Conditional: If  $n$  is an odd number, then  $n - 1$  is divisible by 2.

Converse: \_\_\_\_\_

Biconditional: \_\_\_\_\_

4. Conditional: An angle is obtuse when it measures between  $90^\circ$  and  $180^\circ$ .

Converse: \_\_\_\_\_

Biconditional: \_\_\_\_\_

**Determine whether a true biconditional can be written from each conditional statement. If not, give a counterexample.**

5. If the lamp is unplugged, then the bulb does not shine.

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6. The date can be the 29th if and only if it is not February.

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**Write each definition as a biconditional.**

7. A cube is a three-dimensional solid with six square faces.

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8. Tanya claims that the definition of *doofus* is "her younger brother."

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## Practice B

1. Conditional: If the tea kettle is whistling, then the water is boiling.

Converse: If the water is boiling, then the tea kettle is whistling.

2. Conditional: If a biconditional is true, then the conditional and converse are both true.

Converse: If the conditional and converse are both true, then the biconditional is true.

3. Converse: If  $n - 1$  is divisible by 2, then  $n$  is an odd number.

Biconditional:  $n$  is an odd number if and only if  $n - 1$  is divisible by 2.

4. Converse: If an angle measures between  $90^\circ$  and  $180^\circ$ , then the angle is obtuse.

Biconditional: An angle is obtuse if and only if it measures between  $90^\circ$  and  $180^\circ$ .

5. No; sample answer: The switch could be off.

6. No; possible answer: Leap years have a Feb. 29th.

7. A figure is a cube if and only if it is a three-dimensional solid with six square faces.

8. A person is a doofus if and only if the person is Tanya's younger brother.