

# Beginning Activities for Section 1.1

*Mathematical Reasoning: Writing and Proof, Version 3*

## Beginning Activity 1 (Statements)

The sentences in (1), (2), (4), and (5) are statements.

The sentence in (3) is not a statement since it involves a variable  $x$  and we do not know what  $x$  represents.

The sentence in (6) is not a statement since it is a question and not a declarative sentence.

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## Beginning Activity 2 (Conditional Statements)

1. If it is raining, then Laura is at the theatre.

- (a) This statement is true when it is raining and Laura is at the theatre.
- (b) This statement is false when it is raining and Laura is not at the theatre.
- (c) This statement is true when it is not raining and Laura is at the theatre.
- (d) This statement is true when it is not raining and Laura is not at the theatre.

2.

|     | Hypothesis   | Conclusion                            |
|-----|--|---------------------------------------|
| (a) | $x$ is a positive real number.                             | $\sqrt{x}$ is a positive real number. |
| (b) | $\sqrt{x}$ is not a real number.                           | $x$ is a negative real number.        |
| (c) | the lengths of the diagonals of a parallelogram are equal. | the parallelogram is a rectangle.     |

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