**LOGIC AND REASONING** Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. What can you conclude by using the given statement together with each conditional statement? If no conclusion is possible, write NONE.

**GIVEN: All my students love geometry.**

1. Heather loves geometry.
2. Luke is my student.
3. Jane is not my student.

4) Braxton does love not geometry.

2. Determine whether the statement (3) follows from statements (1) and (2).

Write VALID or INVALID.

a) (1) If I fail my test, then I am grounded.

(2) I am not grounded.

(3) I passed my test.

b) (1) If the Saints lose their football game, then I am in a bad mood.

(2) I am in a bad mood.

(3) The Saints lost their football game.

3. Complete the following algebraic proof:

You may not use all of the blanks! ☺

Given: 

Prove: x = 3

|  |  |
| --- | --- |
| **Statements** | **Reasons** |
| 1. | 1. |
| 2. | 2. |
| 3. | 3. |
| 4. | 4 |
| 5. | 5. |
| 6. | 6. |
| 7. | 7. |

4. State the property, postulate, definition or theorem for each statement:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ If P is the midpoint of , then .

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ If then .

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ If m∠1 = m∠2, then m∠2 = m∠1.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ if ray XY bisects 

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ .

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ If , then .

5. Prove each of the following:

a. Given: Statements Reasons

Prove:

b. Given: X is the midpoint of Segment AC,

X is the midpoint of Segment DB

AX = XB Statements Reasons

Prove: DX = CD