2.7 Writing Statements in If-Then Form

TEKS a.6; 8.16.A

MATERIALS • paper and pencil

QUESTION How can you write an *all* or *none* statement in if-then form?

EXPLORE Tell whether certain statements are true about a group

STEP 1 Answer questions Copy the questions below and write your answers beside them.

1. Do you play an instrument?
2. Do you participate in a school sport?
3. Are you taking an art class?
4. Do you walk to school?

STEP 2 Write if-then statements Each of the *all* or *none* statements below can be written in if-then form. Copy each statement and complete its equivalent if-then form. The first one is done for you as an example.

1. All of the students in our group play an instrument.
   If a student is in our group, then the student plays an instrument.
2. None of the students in our group participates in a school sport.
   If __?__, then __?__.
3. None of the students in our group is taking an art class.
   If __?__, then __?__.
4. All of the students in our group walk to school.
   If __?__, then __?__.

STEP 3 Analyze statements Form a group with 2 or 3 classmates. Tell whether each if-then statement in Step 2 is *true* or *false* for your group. If the statement is false, give a counterexample.

DRAW CONCLUSIONS Use your observations to complete these exercises

1. *Describe* the similarity and difference in the if-then forms of the following statements:

   All of the students in our group listen to rock music.

   None of the students in our group listens to rock music.

Rewrite the given conditional statement in if-then form. Then tell whether the statement is *true* or *false*. If it is false, give a counterexample.

2. All of the positive numbers are integers.
3. All of the rational numbers can be written as fractions.
4. None of the negative numbers is a whole number.
5. None of the rational numbers has an opposite equal to itself.