

CONDITIONAL STATEMENTS In the activity on page 109, you saw that a conditional statement not in if-then form can be written in that form.

EXAMPLE 5 Rewrite a conditional statement in if-then form

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.

Solution

a. Given: No integers are irrational numbers.

If-then form: If a number is an integer, then it is not an irrational number.

The statement is true.

b. Given: All real numbers are rational numbers.

If-then form: If a number is a real number, then it is a rational number.

The statement is false. For example, $\sqrt{2}$ is a real number but *not* a rational number.




 **GUIDED PRACTICE** for Example 5

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

10. All square roots of perfect squares are rational numbers.
11. All repeating decimals are irrational numbers.
12. No integers are irrational numbers.

2.7 EXERCISES

HOMEWORK KEY

-  = **WORKED-OUT SOLUTIONS**
on p. WS1 for Exs. 9, 19, and 49
-  = **STANDARDIZED TEST PRACTICE**
Exs. 23, 42, 43, 50, 53, 56, and 57
-  = **MULTIPLE REPRESENTATIONS**
Ex. 54

SKILL PRACTICE

1. **VOCABULARY** Copy and complete: The set of all rational and irrational numbers is called the set of ? .
2. **WRITING** Without calculating, how can you tell whether the square root of a whole number is rational or irrational?

EVALUATING SQUARE ROOTS Evaluate the expression.

- | | | | |
|-------------------|--------------------|---------------------|--------------------|
| 3. $\sqrt{4}$ | 4. $-\sqrt{49}$ | 5. $-\sqrt{9}$ | 6. $\pm\sqrt{1}$ |
| 7. $\sqrt{196}$ | 8. $\pm\sqrt{121}$ | 9. $\pm\sqrt{2500}$ | 10. $-\sqrt{256}$ |
| 11. $-\sqrt{225}$ | 12. $\sqrt{361}$ | 13. $\pm\sqrt{169}$ | 14. $-\sqrt{1600}$ |

EXAMPLE 1
on p. 110
for Exs. 3–14