1-4 Additional Practice

Inductive Reasoning

For Exercises 1 and 2, find a pattern for each sequence. Use the pattern to find the next two terms.

1. 5, 11, 18, 26, 35, 45, …
   Pattern: Add 6. Then increase the number you add by 1 for each new term.
2. B, D, F, H, J, L, N, …
   Pattern: Skip 1 letter to find each new term.

Make a conjecture for each scenario. Show your work.

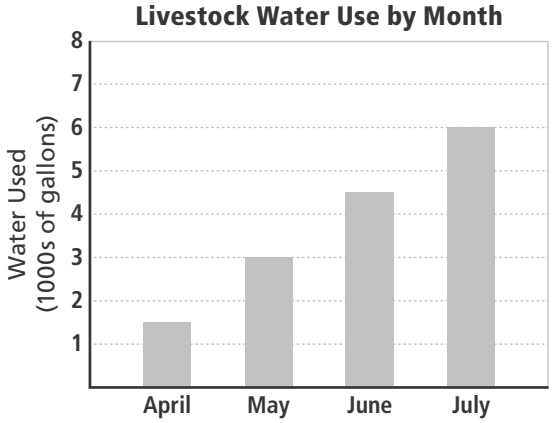
3. the square of an even number
   Answers may vary. Sample: The number is even.
4. the product of two odd numbers and a multiple of 2
   Answers may vary. Sample: The number is odd.

Find one counterexample to show that each conjecture is false.

5. For two real numbers a and b, a is either equal to b or greater than b.
   Answers may vary. Sample: Let $a = 1$ and $b = 2$: $a < b$.
6. All quadrilaterals are parallelograms.
   Answers may vary. Sample: Trapezoids are not parallelograms.

For each conjecture, verify it with several more examples or find a counterexample to disprove it.

7. For whole number n, n^3 will be odd if n is odd and even if n is even.
   Answers may vary. Sample: $1^3 = 1 \times 1 \times 1 = 1$; $2^3 = 2 \times 2 \times 2 = 8$; $3^3 = 3 \times 3 \times 3 = 27$
8. **Understand** Consider this statement: All families go to the movies together. What is required to prove that the statement is false?
   Find a family that does not go to the movies together.
9. **Apply** A farmer keeps track of the water his livestock uses each month. How can he use his data to predict the amount of water used in August?



Use the pattern that each month the water usage increases by 1,500 gallons. In August, the water usage should be close to 7,500 gallons.