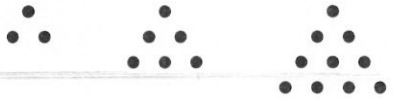
Name _____ Date _____

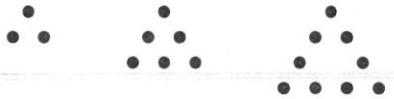
LESSON 2.1

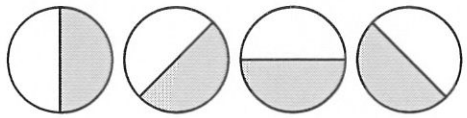
# Practice A

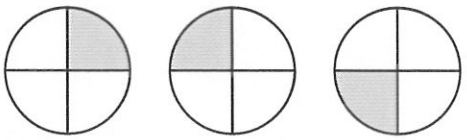
*For use with the lesson "Use Inductive Reasoning"*

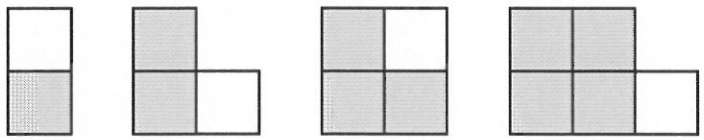
**Sketch the next figure in the pattern.**

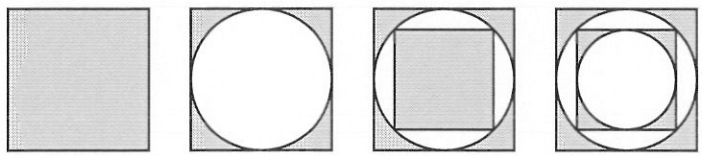
1. 

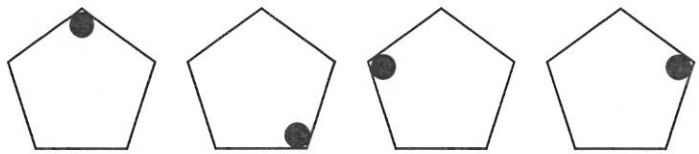
2. 

3. 

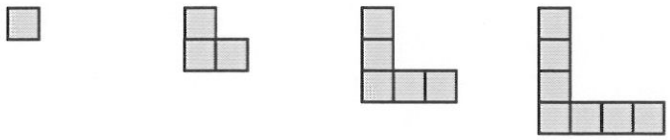
4. 

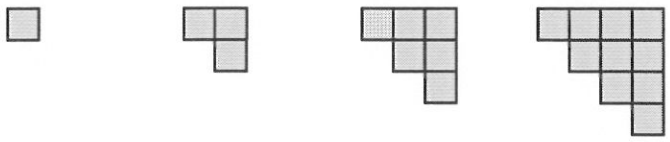
5. 

6. 

7. 

**The first four objects in a pattern are shown. How many squares are there in the next object?**

8. 

9. 

Name _____ Date _____

LESSON 2.1

# Practice A *continued*

*For use with the lesson "Use Inductive Reasoning"*

***Describe* a pattern in the numbers. Write the next number in the pattern.**

**10.** 5, 10, 15, 20, . . .

**11.** 26, 23, 20, 17, 14, . . .

**12.** 2, 6, 18, 54, . . .

**13.** 32, 16, 8, 4, . . .

**14.** −12, −8, −4, 0, . . .

**15.** 3, −9, 27, −81, . . .

**Complete the conjecture based on the pattern you observe in the specific cases.**

**16.** Use the following products of odd integers to complete the conjecture about the product of any two odd numbers: $1 \times 3 = 3$, $1 \times 5 = 5$, $3 \times 3 = 9$, $3 \times 5 = 15$, $5 \times 1 = 5$, $5 \times 5 = 25$, $5 \times 7 = 35$, $7 \times 1 = 7$, $7 \times 3 = 21$, $7 \times 7 = 49$

**Conjecture** The product of any two odd integers is __?__.

**17.** Complete the following table. Then complete the conjecture that follows.

| **Pair of odd numbers** | 1, 3 | 3, 5 | 5, 7 | 7, 9 | 9, 11 |
|---|---|---|---|---|---|
| **Sum of the numbers divided by 2** | $\frac{1+3}{2}$ | $\frac{3+5}{2}$ | | | |
| **Average of numbers** | 2 | | | | |

**Conjecture** The average of any two consecutive odd whole numbers is __?__.

**Show the conjecture is false by finding a counterexample.**

**18.** The average of any two consecutive even numbers is an even number.

**19.** Any four-sided polygon is a square.

**20.** The square of any integer is a positive integer.

**21.** **Evaporation** You are performing an experiment to explore the effects of surface area on evaporation. Each day you record the depth (in millimeters) of the water in the bowl pictured. The table below shows your results.

| **Day** | 0 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| **Water level (mm)** | 180 | 169 | 158 | 147 | 136 | 125 |

**a.** Predict the height of the water surface in the bowl on day 6.

**b.** Based on these results, make a conjecture about how the surface area of a body of water affects the rate of change of its depth by evaporation.