

Name \_\_\_\_\_

**4-7 Lesson Master**

**Questions on SPUR Objectives**  
See Student Edition pages 275–277 for objectives.

**REPRESENTATIONS** Objective L

In 1–3, a number in a base other than 10 is given.

- a. Write the number in polynomial form.
- b. Evaluate the polynomial to find the base-10 representation of the number.

1.  $3021_4$

a. \_\_\_\_\_

b. \_\_\_\_\_
2.  $10101_2$

a. \_\_\_\_\_

b. \_\_\_\_\_
3.  $4A8_{16}$

a. \_\_\_\_\_

b. \_\_\_\_\_

In 4–6, write the given base-10 number in  
a. base-2. b. base-16.

4. 17

a. \_\_\_\_\_

b. \_\_\_\_\_
5. 26

a. \_\_\_\_\_

b. \_\_\_\_\_
6. 101

a. \_\_\_\_\_

b. \_\_\_\_\_

In 7–9, perform the addition in base 2.

7. 
$$\begin{array}{r} 1\ 0\ 0\ 1_2 \\ + 1\ 1\ 0\ 0_2 \\ \hline \end{array}$$
8. 
$$\begin{array}{r} 1\ 1\ 0\ 0\ 1_2 \\ + 1\ 0\ 0\ 0\ 1_2 \\ \hline \end{array}$$
9. 
$$\begin{array}{r} 1\ 1\ 1\ 0\ 1\ 0_2 \\ + 1\ 1\ 0\ 0\ 0_2 \\ \hline \end{array}$$

10. Check your answer to Question 9 by finding the base-10 representations of the numbers.

\_\_\_\_\_

\_\_\_\_\_

11. Without converting to base 10, tell whether the binary number  $101011_2$  is even or odd, and explain how you know.

\_\_\_\_\_

\_\_\_\_\_

12. a. What digits can be used in a base-5 representation of a number? \_\_\_\_\_

b. What digits can be used in a base-12 representation of a number? \_\_\_\_\_
13. a. How many digits are in the binary representation of 100,101? \_\_\_\_\_

b. How many digits are in the base-10 representation of  $100101_2$ ? \_\_\_\_\_
14. Give the base-6 representation of the base-10 number 1983. \_\_\_\_\_