Name Date

1. Write the following in exponential form (e.g., 100 = 102).

1. 1000 = \_\_\_\_\_\_\_\_\_\_
2. 10 × 10 = \_\_\_\_\_\_\_\_\_
3. 100,000 = \_\_\_\_\_\_\_\_\_\_
4. 100 × 10 = \_\_\_\_\_\_\_\_\_
5. 1,000,000 = \_\_\_\_\_\_\_\_\_\_
6. 10,000 × 10 = \_\_\_\_\_\_\_\_\_

2. Write the following in standard form (e.g., 4 × 102 = 400).

1. 4 × 103 = \_\_\_\_\_\_\_\_\_\_\_\_
2. 64 × 104 = \_\_\_\_\_\_\_\_\_\_\_\_
3. 5,300 ÷ 102 = \_\_\_\_\_\_\_\_\_\_\_
4. 5,300,000 ÷ 103 = \_\_\_\_\_\_\_\_\_
5. 6.072 × 103 = \_\_\_\_\_\_\_\_\_\_\_\_
6. 60.72 × 104 = \_\_\_\_\_\_\_\_\_\_\_\_
7. 948 ÷ 103 = \_\_\_\_\_\_\_\_\_\_\_\_
8. 9.4 ÷ 102 = \_\_\_\_\_\_\_\_\_\_\_\_\_
9. Complete the patterns.
   1. 0.02 0.2 \_\_\_\_\_\_\_\_\_\_ 20 \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_
   2. 3,400,000 34,000 \_\_\_\_\_\_\_\_\_\_ 3.4 \_\_\_\_\_\_\_\_\_\_
   3. \_\_\_\_\_\_\_\_\_\_ 8,570 \_\_\_\_\_\_\_\_\_\_ 85.7 8.57 \_\_\_\_\_\_\_\_\_\_
   4. 444 4440 44,400 \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_
   5. \_\_\_\_\_\_\_\_\_\_ 9.5 950 95,000 \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_
10. After a lesson on exponents, Tia went home and said to her mom, “I learned that 104 is the same as 40,000.” She has made a mistake in her thinking. Use words, numbers, or a place value chart to help Tia correct her mistake.
11. Solve 247 ÷ 102 and 247 × 102.
    1. What is different about the two answers? Use words, numbers, or pictures to explain how the digits shift.
    2. Based on the answers from the pair of expressions above, solve 247 ÷ 103 and 247 × 103.