



Additional Practice 1-1

Patterns with Exponents and Powers of 10

Another Look!

Patterns can help you multiply by powers of 10.

Find the product of 8×10^4 .

Write the product in standard form.

$$8 \times 10^1 = 8 \times 10 = 80$$

$$8 \times 10^2 = 8 \times 10 \times 10 = 800$$

$$8 \times 10^3 = 8 \times 10 \times 10 \times 10 = 8,000$$

$$8 \times 10^4 = 8 \times 10 \times 10 \times 10 \times 10 = 80,000$$

So, 8×10^4 written in standard form is 80,000.

The number of zeros in the product is the same as the exponent.



- Write $10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10$ with an exponent.
- Write $6 \times 10 \times 10 \times 10 \times 10$ with an exponent.
- How many zeros are in the standard form of 10^7 ? Write this number in standard form.

In 4–14, find each product. Use patterns to help.

4. $4 \times 10^1 =$

$$4 \times 10^2 =$$

$$4 \times 10^3 =$$

$$4 \times 10^4 =$$

5. $7 \times 10 =$

$$7 \times 100 =$$

$$7 \times 1,000 =$$

$$7 \times 10,000 =$$

6. $5 \times 10^1 =$

$$5 \times 10^2 =$$

$$5 \times 10^3 =$$

$$5 \times 10^4 =$$

7. 3×10^1

8. 2×100

9. 3×10^4

10. $1,000 \times 9$

11. 6×10^2

12. 3×10^3

13. $10,000 \times 2$

14. 8×10^5

15. Explain how to find the number of zeros in the product for Exercise 14.



16. Maria saw 2×10^1 dogs in the park on Saturday. She saw twice as many dogs on Sunday as she saw on Saturday. How many dogs did she see over the two days?

17. **Number Sense** In which place is the digit in the number 5,341 that would be changed to form 5,841? How do the values of the two numbers compare?

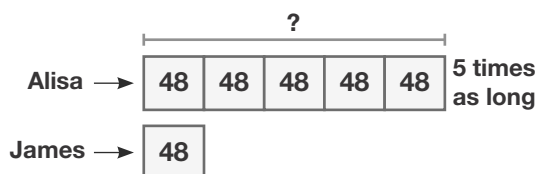
18. **enVision® STEM** There are 2,000 pounds in a ton. How can you write 2,000 with an exponent?

Scientific notation is written as one digit times a power of ten.



19. Kay buys 12 pounds of apples. Each pound costs \$3. If she gives the cashier two \$20 bills, how much change should she receive?

20. **Model with Math** James practiced piano for 48 minutes. Alisa practiced for 5 times as long as James. How many minutes did Alisa practice? How many minutes in all did James and Alisa practice? Write an equation to model your work.



21. **Higher Order Thinking** George said that 6×10^3 is 180. Do you agree or disagree? If you disagree, explain the mistake that he made and find the correct answer.

Assessment Practice

22. Choose all the equations that are true.

- ☐ $10 \times 10 \times 10 \times 10 \times 10 = 100,000$
- ☐ $10 \times 10 \times 10 \times 10 \times 10 = 50$
- ☐ $10 \times 10 \times 10 \times 10 \times 10 = 50,000$
- ☐ $10 \times 10 \times 10 \times 10 \times 10 = 10^5$
- ☐ $10 \times 10 \times 10 \times 10 \times 10 = 50,000$

23. Choose all the equations that are true.

- ☐ $90,000 = 9 \times 1,000$
- ☐ $90,000 = 9 \times 1,000$
- ☐ $90,000 = 9 \times 10^4$
- ☐ $90,000 = 9 \times 10^5$
- ☐ $90,000 = 9 \times 10^6$