

Lesson 6 Reteach

Scientific Notation

A number in scientific notation is written as the product of a factor that is at least one but less than ten and a power of ten.

Example 1

Write 8.65×10^7 in standard form.

$$\begin{aligned} 8.65 \times 10^7 &= 8.65 \times 10,000,000 \\ &= \underline{\underline{86,500,000}} \end{aligned}$$

$$10^7 = 10 \cdot 10 \cdot 10 \cdot 10 \cdot 10 \cdot 10 \cdot 10 \text{ or } 10,000,000$$

The decimal point moves 7 places to the right.

Example 2

Write 9.2×10^{-3} in standard form.

$$\begin{aligned} 9.2 \times 10^{-3} &= 9.2 \times 0.001 \\ &= \underline{\underline{0.0092}} \end{aligned}$$

The decimal point moves 3 places to the left.

Example 3

Write 76,250 in scientific notation.

$$\begin{aligned} \underline{\underline{76,250}} &= 7.625 \times 10,000 \\ &= 7.625 \times 10^4 \end{aligned}$$

The decimal point moves 4 places.

Since 76,250 is >1 , the exponent is positive.

Example 4

Write 0.00157 in scientific notation.

$$\begin{aligned} \underline{\underline{0.00157}} &= 1.57 \times 0.001 \\ &= 1.57 \times 10^{-3} \end{aligned}$$

The decimal point moves 3 places.

Since 0.00157 is <1 , the exponent is negative.

Exercises

Write each number in standard form.

1. 5.3×10^1

2. 9.4×10^3

3. 7.07×10^5

4. 2.6×10^{-3}

5. 8.651×10^{-2}

6. 6.7×10^{-6}

Write each number in scientific notation.

7. 561

8. 14

9. 56,400,000

10. 0.752

11. 0.0064

12. 0.000581

Lesson 6 Skills Practice

Scientific Notation

Write each number in standard form.

1. 6.7×10^1

2. 6.1×10^4

3. 1.6×10^3

4. 3.46×10^2

5. 2.91×10^5

6. 8.651×10^7

7. 3.35×10^{-1}

8. 7.3×10^{-6}

9. 1.49×10^{-7}

10. 4.0027×10^{-4}

11. 5.2277×10^{-3}

12. 8.50284×10^{-2}

Write each number in scientific notation.

13. 34

14. 273

15. 79,700

16. 6,590

17. 4,733,800

18. 2,204,000,000

19. 0.00916

20. 0.29

21. 0.00000571

22. 0.0008331

23. 0.0121

24. 0.00000018