

Write Numbers in Scientific Notation

Study the example problem showing how to write a number in scientific notation. Then solve problems 1–10.

Example

In one year, more than 90,000,000 passengers used the Hartsfield-Jackson Atlanta International Airport in Atlanta, Georgia. Write 90,000,000 in scientific notation.

A number written in scientific notation is the product of a number that is greater than or equal to 1 and less than 10 and a power of 10.

You can think of 90,000,000 as $9 \times 10,000,000$. You can write 10,000,000 as a product of seven 10s, so 10,000,000 written with an exponent is 10^7 .

This means that 90,000,000 written in scientific notation is 9×10^7 .

- 1 Suppose that more than 96,000,000 passengers used the airport in the example. Write 96,000,000 in scientific notation.

- 2 Write 64,500 in scientific notation.

- 3 Describe how you would write 5.04×10^6 in standard form.

- 4 Is 21.5×10^3 in scientific notation? Explain.

Vocabulary

scientific notation a way to express a number as the product of a number greater than or equal to 1 but less than 10 and a power of ten.

$$5.4 \times 10^6$$

$$1.08 \times 10^{-5}$$



Solve.

- 5 The number 0.003 written in scientific notation is 3×10^{-3} . Why is the exponent negative?

- 6 Write 0.00052 in scientific notation.

- 7 Is 4.23×10^{-5} greater than 1 or less than 1? Explain how you know.

- 8 Sylvester says that 0.000002015 written in scientific notation is 2.015×10^6 . Do you agree with him? Explain why or why not.

- 9 Explain how you could write the mixed number $45 \frac{3}{8}$ in scientific notation.

- 10 Jalil makes a generalization about writing numbers in scientific notation. Complete his statement.
When you write a number greater than or equal to 1 in scientific notation, the exponent of the power of 10 will be _____.
When you write a number between 0 and 1 in scientific notation, the exponent of the power of 10 will be _____.