

Reteaching 3-2

Scientific Notation

Scientific notation is an efficient way to write very large numbers. A number is written as the product of a number between 1 and 10 and a power of 10.

Write 4,000,000,000 in scientific notation.

- Count the number of places that you need to move the decimal point to the left to get a factor between 1 and 10.

$$\underbrace{4,000,000,000}_{9 \text{ places}} \rightarrow 4.\underbrace{000 \ 000 \ 000}$$

- Use the number of places as the exponent of 10.

$$4,000,000,000 = 4 \times 10^9$$

To change a number from scientific notation to standard form, undo the steps at the left.

Write 3.5×10^8 in standard form.

- Note the exponent of 10. (Here it is 8.)
- Move the decimal point to the right the number of places that is equal to the exponent.

$$3.5 \times 10^8 \rightarrow \underbrace{350,000,000}_{8 \text{ places}}$$

$$3.5 \times 10^8 = 350,000,000$$

Write in scientific notation.

1. 3,500

Move the decimal point _____ places to the _____.

$$3,500 = \underline{\hspace{2cm}} \times \underline{\hspace{2cm}}$$

3. 93,000,000 _____

5. 17,000 _____

7. 2,400 _____

9. 560,000,000,000 _____

2. 1,400,000

Move the decimal point _____ places to the _____.

$$1,400,000 = \underline{\hspace{2cm}} \times \underline{\hspace{2cm}}$$

4. 1,200,000 _____

6. 750,000 _____

8. 6,532,000 _____

10. 34,800,000 _____

Write in standard form.

11. 2.58×10^3 _____

13. 4.816×10^5 _____

15. 1.85×10^7 _____

17. 8.003×10^1 _____

19. 4.23×10^2 _____

12. 8×10^6 _____

14. 8.11×10^2 _____

16. 3.7509×10^3 _____

18. 5.66×10^9 _____

20. 9.992×10^{10} _____