

Name: _____

Period: _____

Scientific Notation Practice

Writing in Scientific Notation

Scientific notation is the process of reducing the number of zeroes in a long number so you can express the value as a simple number multiplied by a power of ten. For example, $10,000 = 10^4$

When the Earth and Neptune are 4,600,000,000,000 meters apart, that can more easily be written as 4.6×10^{12} meters

A shortcut for scientific notation involves moving the decimal point and counting the number of places it is moved. To change 18,000 to 1.8, the decimal point is moved four places to the left. The number of places the decimal point is moved is the correct power of 10.

$$18000 \text{ L} = 1.8 \times 10^4 \text{ L}$$

When a quantity smaller than 1 is converted to scientific notation, the decimal moves to the right and the power of 10 is *negative*. For example, suppose an E. coli bacterium is measured to be 0.0000021 meters long. To express this measurement in scientific notation, we move the decimal point to the right:

$$0.0000021 \text{ m} = 2.1 \times 10^{-6} \text{ m}$$

Write the following measurements in scientific notation:

- _____ 1. 600,000,000 m
- _____ 2. 0.0435 kg
- _____ 3. 72,400 L
- _____ 4. 0.000557 M
- _____ 5. 4,003,000 km
- _____ 6. 0.00000000008 kg

Write the following measurements in long forms, using commas if necessary:

- _____ 7. 7.5×10^3 g
- _____ 8. 8.15×10^{-2} m
- _____ 9. 5.227×10^5 km
- _____ 10. 2.001×10^{-4} cm

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Write the answers to the following problems in Scientific Notation

11. $8.88 \times 10^4 + 2.1 \times 10^4$

12. $4.29 \times 10^2 / 4.55 \times 10^2$

13. $7.4 \times 10^4 / 3.7 \times 10^3$

14. $13.225 \times 10^1 + 2.775 \times 10^2$

15. A farmer was trying to approximate how many sunflowers he had in his fields. He knew that there were approximately 2.0×10^1 flowers per square meter on his property. The farmer has two fields, one that is 3.5×10^3 square meters and the other one is 6.5×10^4 square meters. What is the total number of sunflowers in his fields? Give your answer in proper scientific notation format.