ALBERT

Name _____ Date _____

Scientific Notation Worksheet

Grade 8 · Common Core 8.EE.A.4

> Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.

Practice

Builds the skill step by step.

1. Write 4,500,000 in scientific notation.

2. Write 0.00032 in scientific notation.

3. Write 6.1×10^{5} in standard form.

4. Write 2.07×10^{-3} in standard form.

5. Which number is written in scientific notation?

   A. 3.4×10^{7}

   B. 34×10^{6}

   C. 0.34×10^{8}

   D. $3.4 + 10^{7}$

6. Multiply $(2 \times 10^3)(4 \times 10^5)$. Write your answer in scientific notation.

7. Divide $(9 \times 10^8) \div (3 \times 10^2)$. Write your answer in scientific notation.

8. Add $(2.5 \times 10^4) + (1.3 \times 10^4)$. Write your answer in scientific notation.

9. A calculator shows 5.2E7. What number does it mean?

   A. 5.2×10^{-7}

   B. 5.2×10^7

   C. 5.2×7

   D. 5.27

10. Which unit is best for measuring the width of a single human hair?

    A. miles

    B. meters

    C. kilometers

    D. millimeters

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On Level

Grade-level practice.

1. Multiply $(3 \times 10^4)(5 \times 10^6)$. Write your answer in scientific notation.

2. Divide $(8 \times 10^3) \div (4 \times 10^{-2})$. Write your answer in scientific notation.

3. Subtract $(6.2 \times 10^5) - (1.2 \times 10^5)$. Write your answer in scientific notation.

4. Add $(4 \times 10^5) + (3 \times 10^4)$. Write your answer in scientific notation.

5. Multiply $(1.2 \times 10^{-3})(3 \times 10^{-2})$. Write your answer in scientific notation.

6. One light-year is about 9.5×10^{12} kilometers. About how far is 4 light-years? Write your answer in scientific notation.

7. A calculator shows 6.4E−5. Which is that number in standard form?

   A. 0.0000064

   B. 0.00064

   C. 0.000064

   D. 640,000

8. Multiply $0.004 \times (2 \times 10^6)$. Write your answer in scientific notation.

9. A pool holds 2.5×10^5 liters. A hose fills it at 50 liters per minute. How many minutes does it take to fill? Write your answer in scientific notation.

10. The seafloor spreads about 2.5×10^{-5} kilometer per year. There are 10^6 millimeters in a kilometer. How many millimeters per year is that?

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Challenge

Multi-step and word problems that stretch it.

1. Multiply $(5 \times 10^{8})(6 \times 10^{-3})$. Write your answer in scientific notation.

2. Divide $(1.8 \times 10^{4}) \div (6 \times 10^{7})$. Write your answer in scientific notation.

3. Subtract $(7.1 \times 10^{6}) - (9 \times 10^{5})$. Write your answer in scientific notation.

4. Ravi writes $(4 \times 10^{5})(5 \times 10^{3}) = 20 \times 10^{8}$ and calls it scientific notation. Which is correct in scientific notation?

   A. 20×10^{8}

   B. 2×10^{8}

   C. 2×10^{15}

   D. 2×10^{9}

5. Earth's mass is about 6×10^{24} kilograms. The Moon's mass is about 7.5×10^{22} kilograms. About how many times as massive is Earth?

6. Add $(3.2 \times 10^{-3}) + 0.0008$. Write your answer in scientific notation.

7. A computer does 3×10^9 operations per second. How many does it do in one hour (3.6×10^3 seconds)? Write your answer in scientific notation.

8. Which is greater: the product $(2 \times 10^6)(3 \times 10^2)$ or the quotient $(9 \times 10^{10}) \div (3 \times 10^2)$?

   A. The product

   B. The quotient

   C. They are equal

   D. You cannot tell

9. A red blood cell is about 8×10^{-6} meter wide. How many cells lined up side by side would stretch 2 meters? Write your answer in scientific notation.

10. Add $(1.5 \times 10^{-4}) + (2 \times 10^{-5})$. Write your answer in scientific notation.