

8.EE.A.4 Solve Problems Involving Scientific Notations

8.EE.A.4 Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used.

- 1 What is the product of 8.4×10^8 and 4.2×10^3 written in scientific notation?
 - 1) 2.0×10^5
 - 2) 12.6×10^{11}
 - 3) 35.28×10^{11}
 - 4) 3.528×10^{12}
- 2 What is the product of (1.5×10^2) and (8.4×10^3) expressed in scientific notation?
 - 1) 1.26×10^5
 - 2) 12.6×10^5
 - 3) 1.26×10^6
 - 4) 12.6×10^6
- 3 What is the product of 12 and 4.2×10^6 expressed in scientific notation?
 - 1) 50.4×10^6
 - 2) 50.4×10^7
 - 3) 5.04×10^6
 - 4) 5.04×10^7
- 4 What is the product of (6×10^3) , (4.6×10^5) , and (2×10^{-2}) expressed in scientific notation?
 - 1) 55.2×10^6
 - 2) 5.52×10^7
 - 3) 55.2×10^7
 - 4) 5.52×10^{10}
- 5 What is the quotient of 8.05×10^6 and 3.5×10^2 ?
 - 1) 2.3×10^3
 - 2) 2.3×10^4
 - 3) 2.3×10^8
 - 4) 2.3×10^{12}
- 6 The quotient of (9.2×10^6) and (2.3×10^2) expressed in scientific notation is
 - 1) 4,000
 - 2) 40,000
 - 3) 4×10^3
 - 4) 4×10^4
- 7 If 3.85×10^6 is divided by 385×10^4 , the result is
 - 1) 1
 - 2) 0.01
 - 3) 3.85×10^2
 - 4) 3.85×10^{10}
- 8 What is the value of $\frac{6.3 \times 10^8}{3 \times 10^4}$ in scientific notation?
 - 1) 2.1×10^{-2}
 - 2) 2.1×10^2
 - 3) 2.1×10^{-4}
 - 4) 2.1×10^4

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- 9 The expression $\frac{6 \times 10^{-7}}{3 \times 10^{-3}}$ is equivalent to
 - 1) 2×10^4
 - 2) 2×10^{10}
 - 3) 2×10^{-4}
 - 4) 2×10^{-10}
- 10 If $(7.6 \times 10^n)(3.5 \times 10^3) = 2.66 \times 10^9$, what is the value of n ?
 - 1) 6
 - 2) 5
 - 3) 3
 - 4) 7
- 11 What is the sum of 6×10^3 and 3×10^2 ?
 - 1) 6.3×10^3
 - 2) 9×10^5
 - 3) 9×10^6
 - 4) 18×10^5
- 12 State the value of the expression $\frac{(4.1 \times 10^2)(2.4 \times 10^3)}{(1.5 \times 10^7)}$ in scientific notation.
 - 1) 1.67×10^{-27} g
 - 2) 1.67×10^{-23} g
 - 3) 1.67×10^{-22} g
 - 4) 1.67×10^{-21} g
- 13 If the mass of a proton is 1.67×10^{-24} gram, what is the mass of 1,000 protons?
 - 1) 1.67×10^{-27} g
 - 2) 1.67×10^{-23} g
 - 3) 1.67×10^{-22} g
 - 4) 1.67×10^{-21} g
- 14 If the number of molecules in 1 mole of a substance is 6.02×10^{23} , then the number of molecules in 100 moles is
 - 1) 6.02×10^{21}
 - 2) 6.02×10^{22}
 - 3) 6.02×10^{24}
 - 4) 6.02×10^{25}
- 15 In 1995, the federal government paid off one-third of its debt. If the original amount of the debt was \$4,920,000,000,000, which expression represents the amount that was not paid off?
 - 1) 1.64×10^4
 - 2) 1.64×10^{12}
 - 3) 3.28×10^8
 - 4) 3.28×10^{12}
- 16 Two objects are 2.4×10^{20} centimeters apart. A message from one object travels to the other at a rate of 1.2×10^5 centimeters per second. How many seconds does it take the message to travel from one object to the other?
 - 1) 1.2×10^{15}
 - 2) 2.0×10^4
 - 3) 2.0×10^{15}
 - 4) 2.88×10^{25}
- 17 The distance from Earth to the imaginary planet Med is 1.7×10^7 miles. If a spaceship is capable of traveling 1,420 miles per hour, how many days will it take the spaceship to reach the planet Med? Round your answer to the nearest day.

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Answer Key

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1 ANS: 4

2 ANS: 3

3 ANS: 4

4 ANS: 2

5 ANS: 2

6 ANS: 4

$$\frac{9.2 \times 10^6}{2.3 \times 10^2} = 4 \times 10^4$$

7 ANS: 1

8 ANS: 4

9 ANS: 3

10 ANS: 2

$$\frac{26.6 \times 10^8}{3.5 \times 10^3} = 7.6 \times 10^5$$

11 ANS: 1

12 ANS:

$$6.56 \times 10^{-2}$$

13 ANS: 4

14 ANS: 4

15 ANS: 4

16 ANS: 3

$$\frac{\text{distance}}{\text{speed}} = \frac{2.4 \times 10^{20} \text{ c}}{1.2 \times 10^5 \text{ cps}} = 2.0 \times 10^{15} \text{ s}$$

17 ANS:

$$499. \frac{\text{distance}}{\text{speed}} = \frac{1.7 \times 10^7 \text{ miles}}{1420 \text{ mph}} \approx 11972 \text{ hours} \approx 499 \text{ days}$$