Multiplying and Dividing in Scientific Notation

Procedure:

1. **Multiply/Divide the coefficients normally.**
2. **Add/Subtract the exponents of ten.**
3. **Combine the results into scientific notation where the coefficient is between one and ten.**

Example:

$(3.23 \times 10^4) \times (9.1 \times 10^7)$.

By multiplying the coefficients, $3.23 \times 9.1 = 29.393$. By multiplying powers of tens, the exponents are added so $10^4 \times 10^7 = 10^{4+7} = 10^{11}$. Therefore, $(3.23 \times 10^4) \times (9.1 \times 10^7) = 29.393 \times 10^{11} = 2.9393 \times 10^{12}$.

Multiply/Divide.

1. $(4.23 \times 10^5) \times (6.1 \times 10^7)$

2. $(7.833 \times 10^{11}) \div (2.1 \times 10^5)$

3. $(1.57 \times 10^{12}) \times (3.08 \times 10^4)$

4. $(2.584 \times 10^{20}) \div (7.6 \times 10^9)$

5. $(6.032 \times 10^{22}) \div (5.2 \times 10^4)$

6. $(9 \times 10^6) \times (2.3 \times 10^6)$

7. $(3.1 \times 10^{15}) \times (7.2 \times 10^{-5})$

8. $(8.64 \times 10^{19}) \div (1.2 \times 10^{13})$

9. $(7.833 \times 10^8) \div (2.1 \times 10^{-15})$

10. $(5.44 \times 10^{12}) \times (8.7 \times 10^{14})$

11. $(5.9 \times 10^{-4}) \times (3.34 \times 10^{11})$

12. $(5.004 \times 10^{10}) \div (3.6 \times 10^{-6})$

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