

Warm Up

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Simplify:

$$3x^2y^{-5} \cdot 15^{-1}x^7y^4$$

$$\begin{aligned} \frac{3x^2 \cdot x^7 \cdot y^4}{y^5 \cdot 15} &= \frac{3x^9y^4}{15y^5} \\ &= \frac{x^9}{5y} \end{aligned}$$

Homework Questions?

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Addition and Subtraction With Scientific Notation

Date _____ Period _____

Simplify. Write each answer in scientific notation.

1) $3.1 \times 10^3 + 4.3 \times 10^3$

7.4×10^3

2) $3 \times 10^1 + 6.4 \times 10^2$

6.7×10^2

3) $2.4 \times 10^4 + 5.57 \times 10^3$

2.957×10^4

4) $5 \times 10^{-2} + 1.6 \times 10^{-3}$

5.16×10^{-2}

5) $2.5 \times 10^1 + 6.14 \times 10^4$

6.1425×10^4

6) $7 \times 10^{-1} + 6.4 \times 10^{-5}$

7.00064×10^{-1}

7) $5 \times 10^{-3} + 3.3 \times 10^{-6}$

5.0033×10^{-3}

8) $8 \times 10^{-1} + 6.9 \times 10^3$

6.9008×10^3

9) $1.39 \times 10^5 - 4 \times 10^2$

1.386×10^5

10) $2.74 \times 10^{-1} - 6.53 \times 10^{-4}$

2.73347×10^{-1}

11) $8.14 \times 10^5 - 7.8 \times 10^2$

8.1322×10^5

12) $6.36 \times 10^3 - 5.8 \times 10^{-1}$

6.35942×10^3

13) $5.1 \times 10^{-1} + 0.38 \times 10^4$

3.80051×10^3

14) $5.9 \times 10^{-2} - 0.078 \times 10^3$

-7.7941×10^1

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Operations with Scientific Notation

$$1.2 \times 10^7 \cdot 3 \times 10^3$$

$$3.6 \times 10^{10}$$

$$\frac{6 \times 10^7}{3 \times 10^3}$$

What would happen if we replaced 10 with a variable?

$$1.2x^7 \cdot 3x^3 = 3.6x^{10}$$

$$1.2 \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot 3 \cdot x \cdot x \cdot x$$

$$\frac{6 \cdot 10^7}{3 \cdot 10^3} = 2 \times 10^4$$

Practice

$$(2 \times 10^5)(3 \times 10^2) = 6 \times 10^7$$

$$(5 \times 10^{-2})(2.3 \times 10^{12}) = 11.5 \times 10^{10}$$
$$1.15 \times 10^{11}$$

$$(2.5 \times 10^{-3})(6 \times 10^{15}) = 15 \times 10^{-18}$$
$$= 1.5 \times 10^{-17}$$

$$\frac{4.8 \times 10^{-4}}{1.2 \times 10^{-7}} = 4 \times 10^{-4+7} = 4 \times 10^3$$

$$\frac{1.2 \times 10^5}{6 \times 10^3}$$

Operations with Scientific Notation

These should all be solved without using a calculator. Make sure your answers are in proper scientific notation.

1. $(2.5 \times 10^6)(3 \times 10^3) =$

2. $(3 \times 10^{-5})(3 \times 10^{-10}) =$

3. $(4 \times 10^1)(2 \times 10^{11}) =$

4. $(6 \times 10^5)(4 \times 10^3) =$

5. $(5 \times 10^{-15})(7 \times 10^6) =$

6. $(2 \times 10^{-4})(7 \times 10^{-8}) =$

7. $(7 \times 10^6)(3 \times 10^{-7}) =$

8. $(4 \times 10^{-10})(3 \times 10^{13}) =$

9. $\frac{2.6 \times 10^{-3}}{1.3 \times 10^9} =$

10. $\frac{5 \times 10^8}{2 \times 10^3} =$

11. $\frac{1.2 \times 10^7}{4 \times 10^5} =$

12. $\frac{2.3 \times 10^{-3}}{4.6 \times 10^9} =$

13. $\frac{7 \times 10^{-5}}{3.5 \times 10^{-9}} =$

14. $\frac{9 \times 10^{-3}}{3 \times 10^{-3}} =$

15. $\frac{2.8 \times 10^0}{4 \times 10^{-7}} =$

16. $\frac{2 \times 10^{-2}}{8 \times 10^{-11}} =$