MATH 0482

Chapter 1.5 Rules of Exponents and Scientific Notation

Review of the Rules of Exponents

$x^2 \cdot x^3$

$(x^2)^3$

Product Rule for Exponents

Power Rule for Exponents

$(x^2y^3)^4$

Rules: $x^m \cdot x^n = x^{m+n}$

$(x^m)^n = x^{m \cdot n}$

$\frac{x^m}{x^n} = x^{m-n}$

$(xy)^n = x^n y^n$

$\left(\frac{x}{y}\right)^n = \frac{x^n}{y^n}$

Simplify.

$\frac{10^4 \cdot 10^{12}}{10^3}$

$(x^5 \cdot x^4 \cdot x)^3$

$(x+y)^9 (x+y)^{13}$

$-8x^5y \cdot 3x^7y^3$

$\frac{33x^7y^5(x-y)^{10}}{11x^6y(x-y)^3}$

$\left(\frac{-4a^2b}{c^4}\right)^3$

Simplify.

$(-2x)^0$ $\quad -2x^0$ $\quad (-4x^2y)^{-2}$

$\dfrac{x^{-3}}{y^{-4}}$ $\quad \dfrac{-5x^{-3}y^3}{z^{-4}}$

Scientific Notation: $a \times 10^N \quad 1 \le a < 10$

9,460,000,000,000,000

0.000000000025

0.00563

WRITE USING SCIENTIFIC NOTATION

1,075,000,000,000

0.000003045

MULTIPLY.

$(4.36 \times 10^{-5})(5.3 \times 10^{12})$

DIVIDE.

$(3.24 \times 10^{8}) \div (9.0 \times 10^{-3})$

THE SPEED OF LIGHT IS 6.7×10^{8} MILES PER HOUR. EXPRESS THIS SPEED IN MILES PER SECOND.