

10.7

Operations in Scientific Notation (Day 2)

Today's Learning Goals:

- Multiply and divide numbers written in scientific notation.

Rules for Operations

To make scientific notation have a bigger exponent:

- Move the decimal left
- Add the number of times you moved the decimal to the exponent.

1) 2.4×10^3

3) 8.2×10^{-9}

2) 7.1×10^7

4) 4.6×10^{-4}

Adding Integers without a number line

$-3 + -5 =$

$-1 + -3 =$

$-6 + -2 =$

$-9 + -14 =$

$-12 + -8 =$

SAME SIGN

- Ignore the signs
- Add numbers
- Put sign back

Adding Integers without a number line

$$-3 + 5 =$$

$$-1 + 6 =$$

$$-5 + 9 =$$

$$5 + -7 =$$

$$8 + -6 =$$

$$14 + -18 =$$

DIFFERENT SIGNS

- Ignore the signs
- Subtract
- Put sign back of number that "looks" the biggest

Subtraction is the same as adding the opposite

1. Change the minus sign to addition
2. Change the second number into the opposite
3. Do the problem like a regular addition problem

$$5 - 7$$

$$3 - (-7)$$

$$-3 - 6$$

$$-5 - (-9)$$

Examples

Simplify the following:

$$a) -7 - (-5)$$

$$b) -2 - 6$$

$$c) 64 - (-13)$$

$$d) 17 - 29$$

Review

$$1) a^3 \bullet a^2$$

$$4) 10^7 \bullet 10^4$$

$$2) b^7 \bullet b^9$$

$$5) 10 \bullet 10^2 \bullet 10^3$$

$$3) 7^4 \bullet 7^5$$

The Product of Powers Property:

To multiply powers with the same base _____

_____.

The Quotient of Powers Property:

_____ base & _____ the exponents.

6) $\frac{n^{24}}{n^{16}}$

7) $\frac{x^8}{x^5}$

8) $\frac{10^8}{10^5}$

9) $\frac{10^{15}}{10}$

Find $(2 \times 10^{-4}) \times (6 \times 10^{-3})$. Write your answer in scientific notation.

Lesson

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

Multiply the coefficients



Add exponents



Make sure it's in correct scientific notation

Lesson

Find $\frac{1.5 \times 10^{-8}}{6 \times 10^7}$. Write your answer in scientific notation.

Divide the coefficients



Subtract exponents



Make sure it's in correct scientific notation

Find $\frac{5.3 \times 10^8}{4 \times 10^{-3}}$. Write your answer in scientific notation.