

Warm-Up Notes

MAT 100: ELEMENTARY ALGEBRA

— Fall 2026 —

SECTION 6.7 INTEGER EXPONENTS AND SCIENTIFIC NOTATION

Install — 10 minute lesson

Objectives of this Section

- Use the definition of a negative exponent
- Simplify expressions with integer exponents
- Convert from decimal notation to scientific notation
- Convert scientific notation to decimal form
- Multiply and divide using scientific notation

Skills**Introduced in this section:**

- EXP.SN — Scientific Notation

Also practiced: EXP.NZ (Negative and Zero Exponents), WRD.NM (Naming the model).

Lesson

A negative exponent is not a negative number — it's an instruction. It tells you to flip the base to the other side of the fraction bar and make the exponent positive. That one flip is also the trick scientists use to write numbers that are enormous or tiny without writing out a wall of zeros.

I do

Watch. Simplify the following expressions involving integer exponents.

1. b^4b^{-8}
2. $r^{-2}r^5$
3. $x^{-7}x^{-3}$

We do

Together. Multiply the expressions and simplify the exponents.

1. $\{(-4)r^{-2}s^{-8}\}(9r^4s^3)$

You do

Your turn. Evaluate each expression using the definition of a negative exponent.

(a) m^{-4} (b) $(x^3)^{-4}$

Your turn. Express the given number in scientific notation. The population of the world on July 4, 2010 was more than 6,850,000,000.

Practice

1. Express the given number in scientific notation.

The average width of a human hair is 0.0018 centimeters.

2. Convert the decimal notation to scientific notation. Express the number 57,000 in scientific notation.

3. Convert the following number from scientific notation to decimal form.

In 2010, the number of Facebook users each day who changed their status to 'engaged' was 2×10^4 .

4. Divide the following numbers and express the quotient in decimal form.

$$\frac{8 \times 10^6}{4 \times 10^{-1}}$$