Lesson 3: Numbers Raised to the Zeroth Power

Classwork

We have shown that for any numbers , , and any positive integers , , the following holds

(1)

(2)

. (3)

**Definition:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Exercise 1

List all possible cases of whole numbers and for identity (1). More precisely, when and , we already know that (1) is correct. What are the other possible cases of and for which (1) is yet to be verified?

Exercise 2

Check that equation (1) is correct for each of the cases listed in Exercise 1.

Exercise 3

Do the same with equation (2) by checking it case-by-case.

Exercise 4

Do the same with equation (3) by checking it case-by-case.

Exercise 5

Write the expanded form of using exponential notation.

**Exercise 6**

Write the expanded form of using exponential notation.

Homework: Unit 4 Lesson 3

Let be numbers . Simplify each of the following expressions.

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