

(D) Real Numbers (1/2) [10 Points]

In 1994, the students of a middle-school math class in Kaktovik, Alaska noticed that Arabic numerals (that is, the digits 0 to 9) were badly suited to counting in their language, Iñupiaq.¹ They decided to come up with a new numeral system, one that would reflect the Iñupiaq number system.

The Kaktovik Iñupiaq numerals (as they have come to be known) made it much easier for students to do math in Iñupiaq, and are easy to use and remember, since each symbol has an intuitive relationship with the number it represents. Within a few years, schools and colleges across northern Alaska were using the numerals, and they were recommended for use in Canada. If you walk into a math classroom in northern Alaska today, you might well see a blackboard that looks like the one below, which features Kaktovik Iñupiaq numerals, Iñupiaq words, and a few places intentionally left blank:

$\cancel{\text{V}} - \cancel{\text{V}}$	<i>siqiññaatchiaq iñuiññaq tallimat malguk, tallimaagliaq iñuiññaq malguk</i>
$\text{W} - \text{W} = \cancel{\text{V}}$	<i>atausiq</i>
$\text{V} \times \text{a.} = \cancel{\text{K}}$	<i>tallimat piñasut</i>
$\text{W} + \cancel{\text{K}} = \cancel{\text{V}}$	<i>qulit malguk</i>
b. $- \cancel{\text{V}} = \cancel{\text{W}}$	<i>akimiaġutaiļaq</i>
$\cancel{\text{V}} - \text{W} = \cancel{\text{K}}$	<i>akimiaq atausiq</i>
$\text{V} \cancel{\text{K}} \div \cancel{\text{V}} = \cancel{\text{K}}$	<i>tallimat piñasut</i>
$\cancel{\text{V}} \times \text{c.} = \cancel{\text{V}} >$	<i>iñuiññaq qulit</i>

1. Iñupiaq, meaning “real or genuine person” (iñuk = person, -piaq = real, genuine), is the language of the Iñupiaq people (or Iñupiat). There are about 3000 speakers of the language, most of them living in northern Alaska. Iñupiaq is closely related to several other Inuit languages spoken in Canada and Greenland.



(D) Real Numbers (2/2)

D1. Fill in the blanks a., b., and c. from the blackboard with Kaktovik Iñupiaq numerals:

a.

b.

c.

D2. Give the Iñupiaq word or words for:

a. three

b. eleven

c. twenty-two

D3. Write in Arabic numerals (i.e., using digits 0-9):

a. atausiq

b. tallimat

c. iñuiññaġutaiļaq

D4. In the top left corner of the blackboard, the same thing is written twice: once in Kaktovik Iñupiaq numerals, and once slightly differently in Iñupiaq words. Write in Arabic numerals (i.e., using digits 0-9):

a. the Kaktovik Iñupiaq numerals in the top left corner of the blackboard

b. quliagliaq

