

Which of these numbers is less than its reciprocal?

- (A) -2 (B) -1 (C) 0 (D) 1 (E) 2

2000 AMC 8, Problem #2—

“Two numbers are reciprocals if and only if their product is 1.”

Solution

Answer (A): The number 0 has no reciprocal, and 1 and -1 are their own reciprocals. This leaves only 2 and -2 . The reciprocal of 2 is $\frac{1}{2}$, but 2 is not less than $\frac{1}{2}$. The reciprocal of -2 is $-\frac{1}{2}$, and -2 is less than $-\frac{1}{2}$.

Difficulty: Medium

NCTM Standard: Number and Operations Standard for Grades 6-8: Understand numbers, ways of representing numbers, relationships among numbers, and number systems.

Mathworld.com Classification: Number Theory > Arithmetic > Multiplication and Division > Reciprocal