Let $a$ be a real number, and let $b$ be a positive real number. Consider the bi-conditional statement

$|a| < b$ if and only if $-b < a < b$.

(a) Is the above statement equivalent to the statement

if $|a| < b$ then $-b < a < b$?

Explain.

(b) Use the method of cases to prove that if $|a| < b$, then $-b < a < b$. 