PROBLEM

Let a > 0, b > 0 and a + b = 1. Show that ab <= 1/4.

PROOFS

Since a>0, b>0, we know that (a+b)/2 >= \sqrt{ab}.

Then, with a+b=1, we know that \sqrt{ab}<=1/2.

Therefore, we know that ab <= 1/4.

QED