Fundamental Theorem of Arithmetic

Euclid's Algorithm

Recall that, if a and b are natural numbers, there are integers k and l so that

$$\gcd(a, b) = ak + bl.$$

Proposition: Suppose that $n \geq 2$ and that $a_1, \ldots, a_n$ are n integers. Let p be a prime number. If $p|(a_1 \cdot a_2 \cdots a_n)$ then p divides at least one of the a_i.