[Note from the writer: It is my first time making documents and I do ‘nt know TeX yet. Forgive any ugly symbols or odd formatting and provide feedback. I am looking to get better at using Libreoffice to make documents]

Say whether the following is true or false and support your answer by a proof.
$(\exists m \in \mathbb{N})(\exists n \in \mathbb{N})[3m+5n=12]$

Answer:
The given statement is false
proof (via contradiction):

Assume given statement is true.
Let m,n be 2 naturals such that $3m+5n=12$
$3m+5n=12$ ..... (1)
$5n=12-3m$
$5n=3(4-m)$
$3|5n$
$3|n$ ($\because$ 5 is a prime number)
let k such that $n=3k$
put $n=3k$ in (1)
$3m+5(3k)=12$
$3m+15k=12$
$3(m+5k)=12$
$m+5k=4$ .....False, because $m+5k$ cannot be less that 6 (remember that we are working with natural numbers only)

$\therefore$ There exists no naturals m,n such that 3m+5n=12.