$$(\exists m \in N)(\exists n \in N)[3m + 5n = 12]$$

If $n > 3$ then we get $5 * 3 = 15$ that is bigger then 12. Hence $0 < n < 3$.
Let n be 2.

$$\begin{aligned} 3m + 5 * 2 &= 12 \\ 3m + 10 &= 12 \\ 3m &= 2 \end{aligned}$$ (Can't get whole m)

Let n be 1.

$$\begin{aligned} 3m + 5 &= 12 \\ 3m &= 7 \end{aligned}$$ (Also can't get whole m)

Therefore there aren't any $m, n \in N$ and the given statement is false.
QED.