

*Proof:*  $3m + 5n = 12 \Rightarrow 5n = 3(4 - m)$  by the algebra. There is possible to find natural numbers for  $n$  and  $m$  iff: left side is divisible by 3 as a right side of equation of above and right side is divisible by 5. Since  $m \in \mathcal{N} \Rightarrow 5|(4 - m)$  is false, then  $(\exists m \in \mathcal{N})(\exists n \in \mathcal{N})(3m + 5n = 12)$  is false. ■