$\neg\exists x \rightarrow \exists q$

E/23 assignment 2

1 (a) $[\exists x \forall y (x<y)] \rightarrow [\forall y \exists x P]$ it holds true

(b) $P_2(x,y): x \times y \geq 7$ it does not hold the proposition

2 (a) Statement: $\forall x \exists y\, A(x,y)$

formal negations: $\exists x \forall y \neg a(x,y)$

negations in english: there exists someone who disagrees with everyone

(b) Statement: $\exists x \exists y (D(x,y) \wedge \forall z (A(z,y)))$

rewritten: there exists someone who demurs to someone that everyone agrees with

3a invalid because all tricicle bikes, and every cycle bikers eat curry that doesn't mean that nobody else is riding bikes.

b Valid because all teachers sing, and Sam sings

c invalid because he could be any type

4 Prove $4m-n$ is a multiple of 3

$4m-n = 4(3L)-3k = 12L-3k = 3(4L-k)$

Since $4L-k$ is an integer, we can rewrite $4m-n$ as 3 times an integer, which means $4m-n$ is a multiple of 3