Question 4.

It ~~is true~~.

Proof: According to the general division theorem, any interger can be presented as $bn+r$, while F

$0 \leq r < |b|$.

if $b=4$. so all interger can be expressed as $4n+r$.

because $0 \leq r < 4$. so only these situations are available:

$4n+0$. $4n+1$. $4n+2$. $4n+3$

clearly $4n+0$ and $4n+2$ are even

so odd number can only be $4n+1$ and $4n+3$

This ~~proofs~~ proves the statement.