due Thursday, October 5

1. Let $c$ be a real number. Prove that the circle in the plane whose equation is $x^{2}+y^{2}=1$ intersects the line whose equation is $y=c x+1$ in either exactly one point, or exactly two points.
2. Let $S$ be a set of integers containing $m$ and $n$. Prove that if $k \mid m$ and $k \mid n$ for all $k$ in $S$, then $m=n$.
