

640:300 WORKSHOP 8
DIVISIBILITY MODULO 3

I. *Prove the following:*

Let $a, b \in \mathbb{Z}$. If $3 \mid (a^2 + b^2)$ then $3 \mid a$ or $3 \mid b$.

II. *Prove or disprove the following:*

Let $a, b \in \mathbb{Z}$. If $5 \mid (a^2 + b^2)$ then $5 \mid a$ or $5 \mid b$.