Quiz 15   **Name:**_____

You must show your work to get full credit.

1. Prove or disprove: If $a, b \in \mathbb{Z}$ **and** $a \mid bc$**, then** $a \mid b$ **or** $a \mid c$**.**

Solution. This is false. One counterexample is $a = 4$, $b = 2$ and $c = 2$, Then $4 = a \mid 4 = bc$, but 4 does not divide either b or c.

Anther counterexample is $a = 4$, $b = 2$ and $c = 6$. Then $4 = a \mid 12 = be$, but 4 does not divide $b = 2$ or $c = 6$.   □