Sec 3.1 page 96 prob 13:

Let $a, b, c \in \mathbb{Z}$. Prove that

$a|b$ and $b|c \Rightarrow a|c$.

Proof: Assume that $a|b$ and $b|c$. Then there exist integers q_1, q_2 such that $b = aq_1$ and $c = bq_2$. Thus $c = a(\underbrace{q_1 q_2}_{\in \mathbb{Z}})$. Hence, by definition, $a|c$, since there exist an integer $q = q_1 q_2$ such that $c = aq$.

∎