

15. *Proof:* Suppose a , b , and c are integers and $a \mid b$ and $a \mid c$. [We must show that $a \mid (b - c)$.]
By definition of divisibility, there exist integers r and s such that $b = ar$ and $c = as$. Then $b - c = ar - as = a(r - s)$ by substitution and the distributive law. But $r - s$ is an integer since it is a difference of two integers. Hence $a \mid (b - c)$ [as was to be shown].