

Suppose  $a, b, m \in \mathbb{Z}$ . If  $m$  divides  $a$ , then  $m$  divides  $ab$ .

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*Proof.* Suppose  $m$  divides  $a$ . Then  $a = km$  for some integer  $k$ . Thus  $ab = kmb$  so  $k$  divides  $ab$  also.  $\square$