

Solutions to selected homework problems. 1.

1.1.18. Because we are looking for the *least* common multiple - if we allowed negative numbers, there would be no such.

1.1.24. True. It is enough to prove that $b|c$ implies $[a, b] | [a, c]$. By Theorem 1.3, it suffices to prove that $a | [a, c]$ and $b | [a, c]$. The former holds by definition. On the other hand, since $b|c$ and $c|[a, c]$ we derive that $b|[a, c]$ as required (here we used Theorem 1.1).

1.2.18. True: apply division algorithm to b and $|c|$.

1.2.20. False: take $a = 2$ and $b = 1$.

1.2.26. $a = 1$, $b = 3$.

1.3.18. $(361, 2109) = 19$ but 1000 is not divisible by 19.