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.