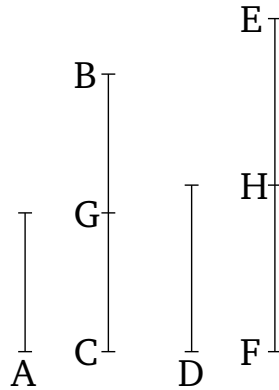# Book 7
Proposition 9

If a number is part of a number, and another (number) is the same part of another, also, alternately, which(ever) part, or parts, the first (number) is of the third, the second (number) will also be the same part, or the same parts, of the fourth.

For let a number A be part of a number BC, and another (number) D (be) the same part of another EF that A (is) of BC. I say that, also, alternately, which(ever) part, or parts, A is of D, BC is also the same part, or parts, of EF.

For since which(ever) part A is of BC, D is also the same part of EF, thus as many numbers as are in BC equal to A, so many are also in EF equal to D. Let BC have been divided into BG and GC, equal to A, and EF into EH and HF, equal to D. So the multitude of (divisions) BG, GC will be equal to the multitude of (divisions) EH, HF.

And since the numbers BG and GC are equal to one another, and the numbers EH and HF are also equal to

one another, and the multitude of (divisions) BG, GC is equal to the multitude of (divisions) EH, HC, thus which(ever) part, or parts, BG is of EH, GC is also the same part, or the same parts, of HF. And hence, which(ever) part, or parts, BG is of EH, the sum BC is also the same part, or the same parts, of the sum EF [Props. 7.5, 7.6]. And BG (is) equal to A, and EH to D. Thus, which(ever) part, or parts, A is of D, BC is also the same part, or the same parts, of EF. (Which is) the very thing it was required to show.