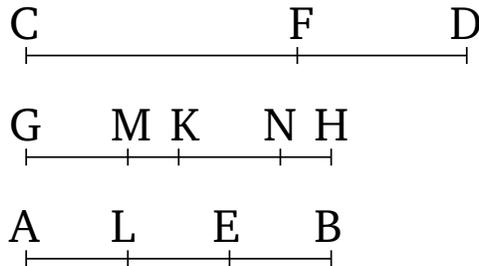


Book 7

Proposition 8

If a number is those parts of a number that a (part) taken away (is) of a (part) taken away then the remainder will also be the same parts of the remainder that the whole (is) of the whole.



For let a number AB be those parts of a number CD that a (part) taken away AE (is) of a (part) taken away CF . I say that the remainder EB is also the same parts of the remainder FD that the whole AB (is) of the whole CD .

For let GH be laid down equal to AB . Thus, which(ever) parts GH is of CD , AE is also the same parts of CF . Let GH have been divided into the parts of CD , GK and KH , and AE into the part of CF , AL and LE . So the multitude of (divisions) GK , KH will be equal to the multitude of (divisions) AL , LE . And since which(ever) part GK is of CD , AL is also the same part of CF , and CD (is) greater than CF , GK (is) thus also greater than AL . Let GM be made equal to AL . Thus, which(ever) part GK is of CD , GM is also the same part of CF . Thus, the remainder MK is also the same part of the remainder FD that the whole GK (is) of the whole CD

[Prop. 7.5]. Again, since which(ever) part KH is of CD , EL is also the same part of CF , and CD (is) greater than CF , HK (is) thus also greater than EL . Let KN be made equal to EL . Thus, which(ever) part KH (is) of CD , KN is also the same part of CF . Thus, the remainder NH is also the same part of the remainder FD that the whole KH (is) of the whole CD [Prop. 7.5]. And the remainder MK was also shown to be the same part of the remainder FD that the whole GK (is) of the whole CD . Thus, the sum MK, NH is the same parts of DF that the whole HG (is) of the whole CD . And the sum MK, NH (is) equal to EB , and HG to BA . Thus, the remainder EB is also the same parts of the remainder FD that the whole AB (is) of the whole CD . (Which is) the very thing it was required to show.