

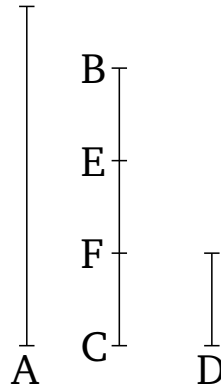
# Book 7

## Proposition 4

Any number is either part or parts of any (other) number, the lesser of the greater.

Let  $A$  and  $BC$  be two numbers, and let  $BC$  be the lesser. I say that  $BC$  is either part or parts of  $A$ .

For  $A$  and  $BC$  are either prime to one another, or not. Let  $A$  and  $BC$ , first of all, be prime to one another. So separating  $BC$  into its constituent units, each of the units in  $BC$  will be some part of  $A$ . Hence,  $BC$  is parts of  $A$ .



So let  $A$  and  $BC$  be not prime to one another. So  $BC$  either measures, or does not measure,  $A$ . Therefore, if  $BC$  measures  $A$  then  $BC$  is part of  $A$ . And if not, let the greatest common measure,  $D$ , of  $A$  and  $BC$  have been taken [Prop. 7.2], and let  $BC$  have been divided into  $BE$ ,  $EF$ , and  $FC$ , equal to  $D$ . And since  $D$  measures  $A$ ,  $D$  is a part of  $A$ . And  $D$  is equal to each of  $BE$ ,  $EF$ , and  $FC$ . Thus,  $BE$ ,  $EF$ , and  $FC$  are also each part of  $A$ . Hence,  $BC$  is parts of  $A$ .

Thus, any number is either part or parts of any (other)

number, the lesser of the greater. (Which is) the very thing it was required to show.