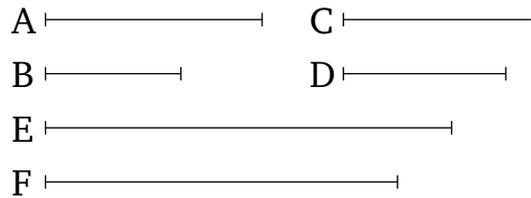


# Book 7

## Proposition 26

If two numbers are both prime to each of two numbers then the (numbers) created from (multiplying) them will also be prime to one another.



For let two numbers,  $A$  and  $B$ , both be prime to each of two numbers,  $C$  and  $D$ . And let  $A$  make  $E$  (by) multiplying  $B$ , and let  $C$  make  $F$  (by) multiplying  $D$ . I say that  $E$  and  $F$  are prime to one another.

For since  $A$  and  $B$  are each prime to  $C$ , the (number) created from (multiplying)  $A$  and  $B$  will thus also be prime to  $C$  [Prop. 7.24]. And  $E$  is the (number) created from (multiplying)  $A$  and  $B$ . Thus,  $E$  and  $C$  are prime to one another. So, for the same (reasons),  $E$  and  $D$  are also prime to one another. Thus,  $C$  and  $D$  are each prime to  $E$ . Thus, the (number) created from (multiplying)  $C$  and  $D$  will also be prime to  $E$  [Prop. 7.24]. And  $F$  is the (number) created from (multiplying)  $C$  and  $D$ . Thus,  $E$  and  $F$  are prime to one another. (Which is) the very thing it was required to show.