2-39. A manufacturing operations consists of 10 operations. However, five machining operations must be completed before any of the remaining five assembly operations can begin. Within each set of five, operations can be completed in any order. How many different production sequences are possible?

OK, we have to permute 10 operations, but these 5 must be done before these five can begin

there are $5!$ permutations here

there are $5!$ permutations here

$$5! \, 5! = (5!)^2 = 14400$$