

An engineering factory can produce five types of product (PROD1, PROD2, ..., PROD5) by using two production processes: grinding and drilling.

After deducting raw material costs, each unit of each product yields the following contributions to profit:

PROD1	PROD2	PROD3	PROD4	PROD5
550€	600€	350€	400€	200€

Each unit requires a certain time on each process. These are given below (in hours). A dash indicates when a process is not needed.

	PROD1	PROD2	PROD3	PROD4	PROD5
Grinding	12	20	–	25	15
Drilling	10	8	16	–	–

In addition, the final assembly of each unit of each product uses 20 hours of an employee's time.

The factory has three grinding machines and two drilling machines and works a six-day week with two shifts of 8 hours on each day. Eight workers are employed in assembly, each working one shift a day.

The problem is to find how much of each product is to be manufactured so as to maximize the total profit contribution.