# Orange Auto Part Manufacturer (3)

At the OAPM, the current "rule of thumb" is to get the orders in and out as fast as possible.

The pre-production quoting process goes as follows: The machinist reviews the order, inspects the CAD file, generates the CAM file, and prints the completed order summary with pricing. (Note: A computer is needed for both CAD inspection and CAM file generation.) The plant manager knows that it normally takes 3 minutes (some as short as 2 minutes, others as long as 4 minutes) to review the order, and anywhere between 30 and 60 seconds to generate the CAM file. It then takes exactly 45 seconds to print the completed order summary.

The orders are serviced by: 1 part-time machinist (Rich) who works daily from 10 a.m. to 2 p.m., 1 full-time machinist (Ann) who works daily from 8 a.m. to 5 p.m. with an hour break between 10:30 a.m. and 11:30 a.m., and the site machinist (Dina) who only helps when everyone else is busy and there are more orders to be produced. The plant manager works daily like Ann, but gets her break from 1:15 p.m. to 2:15 p.m. Due to budgetary constraints, there are only 2 computers available at the facility. The computers are used for CAD inspection and CAM file generation.

Most of the orders are made during their lunch break between 11 a.m. and 1 p.m. Before and after the lunch rush, orders may trickle in and out. The chart below defines the average number of orders that are made by hour over the course of the 9-hour day.

|  |  |
| --- | --- |
| *Hour* | *Average # of Orders* |
| 8 a.m. – 9 a.m. | 10 |
| 9 a.m. – 10 a.m. | 15 |
| 10 a.m. – 11 a.m. | 25 |
| 11 a.m. – Noon | 37 |
| Noon – 1 p.m. | 36 |
| 1 p.m. – 2 p.m. | 14 |
| 2 p.m. – 3 p.m. | 11 |
| 3 p.m. – 4 p.m. | 21 |
| 4 p.m. – 5 p.m. | 24 |

Run the simulation for one 9-hour day. The base time units should be minutes.