The King Company is producing two types of products: A and B. Both products are produced on the same machining operation. The machines operate on two 8-hour shifts, 5 days per week, and 50 weeks per year. The manager wants to maintain a 20 percent capacity cushion. The demand forecast, batch sizes, processing times, and setup times are given in the below table. What is the minimum number of machines needed to meet demand?

|  |  |  |
| --- | --- | --- |
|   | **Product A** | **Product B** |
| **Demand forecast (units/yr)** | 150,000 | 180,000 |
| **Batch size (units/batch)** | 100 | 40 |
| **Processing time (hr/unit)** | 0.3 | 0.15 |
| **Setup time (hr/batch)** | 1 | 1.2 |

Select one:

a. 22

b. 19

c. 25

d. 24