

A plant manager plans to purchase new workstations. He has three choices and their prices are listed below.

| Workstation | Cost |
|-------------|----------|
| A | \$55,000 |
| B | \$45,000 |
| C | \$85,000 |

The new workstation will be used to produce three products. The annual demands for the three products and their processing times on each type of workstations are as the following,

| Product | Annual Demand | Processing Time (minutes/unit) | | |
|---------|---------------|--------------------------------|---|---|
| | | A | B | C |
| 1 | 15,000 | 4 | 5 | 3 |
| 2 | 12,000 | 5 | 5 | 4 |
| 3 | 25,000 | 2 | 3 | 1 |

- a) Assume that workstations operate 8 hours a day and 250 days a year. The only cost considered is the workstation purchasing cost. Only one type of workstations can be purchased. Which workstation should be purchased and how many of that workstation would be needed?

- b) If the following operating costs are considered, what should be the answer in a)? Assume that the purchase costs for workstations are annual costs.

| Workstation | Operating Cost (per hour) |
|-------------|---------------------------|
| A | \$10 |
| B | \$11 |
| C | \$20 |

- c) Assume that the given workstation purchase costs are for the life of three years, the operating costs for each of the workstations remain the same, and all the processing times and demands also remain the same. Which workstation should be purchased and how many of that workstation would be needed assuming that the demands for all three products remain the same for three years?