# QSO 520 Module Two Homework Questions

1. (P2-38) The production department for an aluminum valve plant is scheduling its work for next month. Each valve must go through three separate machines during the fabrication process. After fabrication, each valve is inspected by a human being, who spends 15 minutes per valve. There are 525 inspection hours available for the month. The time required (in hours) by each machine to work on each valve is shown in the following table. Also shown are the minimum number of valves that must be produced for the month and the unit profit for each valve.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| PRODUCT | V231 | V242 | V784 | V906 | CAPACITY (hours) |
| Drilling | 0.40 | 0.30 | 0.45 | 0.35 | 700 |
| Milling | 0.60 | 0.65 | 0.52 | 0.48 | 890 |
| Lathe | 1.20 | 0.60 | 0.5 | 0.70 | 1200 |
| Unit profit | $16 | $12 | $13 | $8 |  |
| Minimum needed | 200 | 250 | 600 | 450 |  |

Determine the optimal production mix for the valve plant to make the best use of its profit potential.

1. (P2-43) An investor is considering three different television news stocks to complement his portfolio: British Broadcasting Company (BBC), Canadian Broadcasting Company (CBC), and Australian Broadcasting Company (ABC). His broker has given him the following information:

|  |  |  |  |
| --- | --- | --- | --- |
|  | Short-Term Growth (per $ invested) | Intermediate Growth (per $ invested) | Dividend Rate |
| BBC | 0.39 | 1.59 | 8% |
| CBC | 0.26 | 1.70 | 4% |
| ABC | 0.42 | 1.45 | 6% |

The investor’s criteria are as follows: (1) The investment should yield short-term growth of at least $1,000; (2) the investment should yield intermediate-term growth of at least $6,000; and (3) the dividends should be at least $250 per year. Determine the least amount the investor can invest and how that investment should be allocated between the three stocks.