**Using Quantitative Techniques to Solve Problems**

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**Chapter 13: Question 16, page 536**

The new shipping plant should be Atlanta because the shipping cost from Atlanta is $17,000. The total shipping cost with Atlanta as the new plant is $57,500. On the other hand, Buffalo's shipping cost is $38,000. The total shipping cost with Buffalo as the new plant is $82,500.

**Supplement D, Questions 11 and 12, page 430**

**Question 11a and 11b**

Please look at the excel spreadsheets.

**Question 12a**

I would pay an extra hour of cutting time because the profit would increase by $3 ($747).

I would not pay for an extra hour of sewing time because the profit would remain at $744.

I would pay an extra yard of material because the profit would increase by $6 ($750).

**Question 12b**

When the cutting time is increased by one hour, the right-hand side value for the shadow prices will remain valid for the cutting constraints when the value is increased at a maximum of 35 and decreased at a maximum of 86 hours of cutting time. Further, the shadow prices would remain valid for the material constraints when the values are increased at a maximum of 344 and decreased at a maximum of 26 yards of material.

When yards of material increase by one, the right-hand side value is valid for the shadow prices for the cutting constraints when the value is increased to a maximum of 36 and decreased to 85 hours of cutter time. Further, the shadow prices would remain valid for material constraints when the right-hand side values are increased to a maximum of 339 and decreased to a maximum of 28 yards of material.

**Part 2**

**Discuss how these methods might be helpful to one of the cases (Continental Tire, Clif Bar, or Starwood Hotels) to solve problems they may be facing**

**Why do you think they might be helpful?**

Starwood Hotels would benefit the most from linear programming and can more effectively predict customer demands and staffing levels. According to Krajewski et al. (2016), Starwood operates in more than 750 locations and customer demand changes during the four seasons.

**What problems would they solve?**

The management team would solve Starwood ‘s staffing problem and help them determine their staffing levels.

**How might applying this simulation enhance a manager’s judgements or experience?**

The manager would be better equipped to create a staffing plan to handle the customer’s demands. Further, the manager would know when to hire more staff and promote the staff members that excel in leadership positions.

**Write a paragraph on why a manager of your chosen case study would benefit from this course?**

At my current employer (Express Scripts), the managers lack education in supply chain design and fail to understand why the leadership team makes certain decisions. This course would benefit them to understand operation planning, scheduling, optimization, and staffing planning. Instead of just taking orders, they can make suggestions to the leadership team to positively impact Express Script's supply chain. Further, they would be able to communicate their ideas in supply chain terminologies and identify the bottlenecks.

**References**

Krajewski, L. J., Malhotra, M. K., & Ritzman, L. P. (2016). Operations management: Processes and supply chains (11th ed.). Boston, MA: Pearson.