

Attendance Quiz for Lecture 17

NAME: (print!) _____

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1. Consider the following transportation problem where \mathbf{s} is the **supply vector**, \mathbf{d} is the **demand vector**, and \mathbf{C} is the **cost matrix** between the supply sites and the demand sites.

$$\mathbf{C} = \begin{bmatrix} 1 & 3 \\ 4 & 8 \end{bmatrix}, \quad \mathbf{s} = \begin{bmatrix} 10 \\ 20 \end{bmatrix}, \quad \mathbf{d} = \begin{bmatrix} 15 \\ 10 \end{bmatrix}.$$

(a) Since the total demand is less than the total supply, create an equivalent problem where the supply equals the demand.

(b) By using the Minimal Cost Rule (**not** Vogel's method!), find **initial basic feasible tableau** for the problem in (a).

(c) By starting with the basic feasible solution in (b), find the optimal solution. Also find the minimal cost. Make sure that it is the optimal solution by using the optimality criterion.

(d) Use Vogel's method (**not** the Minimal Cost rule!) to find **initial basic feasible tableau** for the problem in (a).

(e) Compare the answers to (c) and (d).