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Graded Assignment 2 - Daily Top Chef

Graded Assignment 2

5/5 points (graded)

You have been moved into the transportation department for Daily Top Chef. They distribute their food from each kitchen to their assigned regions using a hub and spoke network. Each night, one large truck hauls all of the pouches for a single region to a parking lot in the middle of that region. The pouches are then transferred from the large truck to several vans in the parking lot. These vans then deliver the pouches to the customers in the early morning hours. This is sometimes called "pooled" operations, where a larger capacity vehicle brings in a large quantity of items that are "cross-docked" into smaller local vehicles for final delivery.

You are trying to understand the cost of delivering to the Oklahoma City region north of your kitchen in Dallas, Texas. You understand the following:

- Each evening one truck leaves the kitchen in Dallas and drives to the parking lot (the pool point) in the center of the Oklahoma City region with all of the pouches for that entire region.
- The truck has a capacity to hold 500 pouches of food and truck transportation cost is \$675 (the transportation cost includes loading and unloading costs of the truck).
- In Oklahoma City, there is a fleet of vans that perform the local delivery.
- The capacity of each van is 50 pouches.
- The cost to load each van at the pool point is \$10.
- The cost to stop at a customer location is \$2 per stop.
- The cost to unload and deliver a single pouch at a destination is \$0.50 per pouch.
- The cost for driving the local vans is \$2.25 per mile.
- Your daily demand for food pouches is 325 pouches and each customer only gets one pouch.
- The Oklahoma City Region is estimated to be essentially a square of 20 by 20 miles with the pool point exactly in the middle.

Part 1

What is the daily cost for hauling the food pouches from the kitchen in Dallas to the pool point of the Oklahoma City Region? Enter your answer in dollars rounded to the nearest integer. Do NOT include the \$ symbol in your answer.



675

What is the daily cost for loading the vans with the food pouches at the Oklahoma City pool point? Enter your answer in dollars rounded to the nearest integer. Do NOT include the \$ symbol in your answer.



70

Part 2

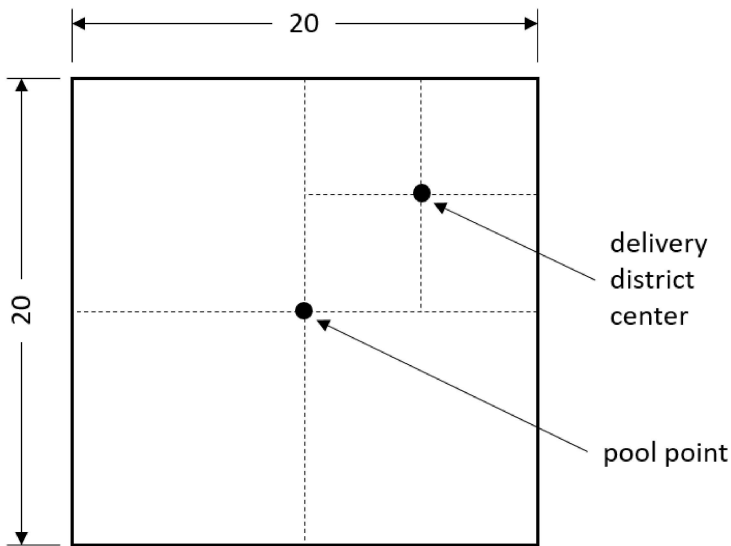
What is the daily cost for delivering pouches to customers for the Oklahoma City region point? Include only the per stop charges and the per pouch charges. Enter your answer in dollars rounded to the nearest integer. Do NOT include the \$ symbol in your answer.



813

Part 3

The Oklahoma City Region is estimated to be essentially a square of 20 by 20 miles with the pool point exactly in the middle. The figure below shows a sketch for the location of the pool point and the center of one delivery district.



What is the daily cost for the linehaul driving of all the vans from the pool point to the center of each delivery district within the Oklahoma City region? Assume a linehaul circuitry factor of 1.06. Enter your answer in dollars rounded to the nearest integer. Do NOT include the \$ symbol in your answer.



236

What is the daily cost for the local driving of the vans in the Oklahoma City region? Assume a traveling salesman factor of 1.10. Enter your answer in dollars rounded to the nearest integer. Do NOT include the \$ symbol in your answer.



892

Part 4

What is the total daily transportation cost per pouch for the Oklahoma City region? Include all costs from leaving the kitchen to delivery to the customer. Enter your answer in dollars rounded to the second decimal. Do NOT include the \$ symbol in your answer.



8.26

Part 5

Your manager is concerned that the per unit cost for delivering the pouches is too high. She wants you to explore ways to reduce the total logistics cost per pouch for this region.

One approach to reduce the average per unit cost for delivering pouches is to negotiate a lower trucking cost from the Dallas kitchen to the Oklahoma City pool point.

Assuming all else stays the same, what would the new transportation cost of the truck have to become in order to reduce the daily transportation cost per pouch for the Oklahoma City region to \$7.25? Include all costs from leaving the kitchen to delivery to the customer. Enter your answer as a dollar value rounded to the nearest integer. Do NOT include the \$ symbol in your answer.



Another approach to reduce the average per unit cost for delivering pouches is to negotiate a lower local VAN cost per mile.

Assume that everything else stays as in the initial problem statement. What would the new driving cost per mile for the vans have to become in order to reduce the daily transportation cost per pouch for the Oklahoma City region to \$7.25? Include all costs from leaving the kitchen to delivery to the customer. Enter your answer as a dollar value rounded to the second decimal. Do NOT include the \$ symbol in your answer.



You have used 2 of 2 attempts

✓ Correct (5/5 points)