HW#2

Problem 3 Example

Textbook Exercise 16.2-4 on p. 427-428

Map of North Dakota

Greedy Algorithm

- Allow Prof. Gecko to skate along roads across North Dakota.
  - Start at Grand Forks on eastern border.
  - End near Williston, near western border.
  - Follow Rt. 2.
  - Constraints on carrying water:
    - Skate at most m miles before running out of water.
    - North Dakota is *flat*, so no uphill or downhill worries!
    - Start with 2 full liters of water at Grand Forks.
    - Assume map shows all water refilling places along Rt. 2 and distances between them.
      - If he stops at a refilling place, he fills water container completely.
- <u>Optimization Goal</u>:
  - Decide which water stops to use.
  - Minimize number of water stops.
  - Provide an efficient (fast) algorithm.
  - Avoid running out of water!
- Prove your approach is optimal.

Map of North Dakota

source: www.mapsofworld.com