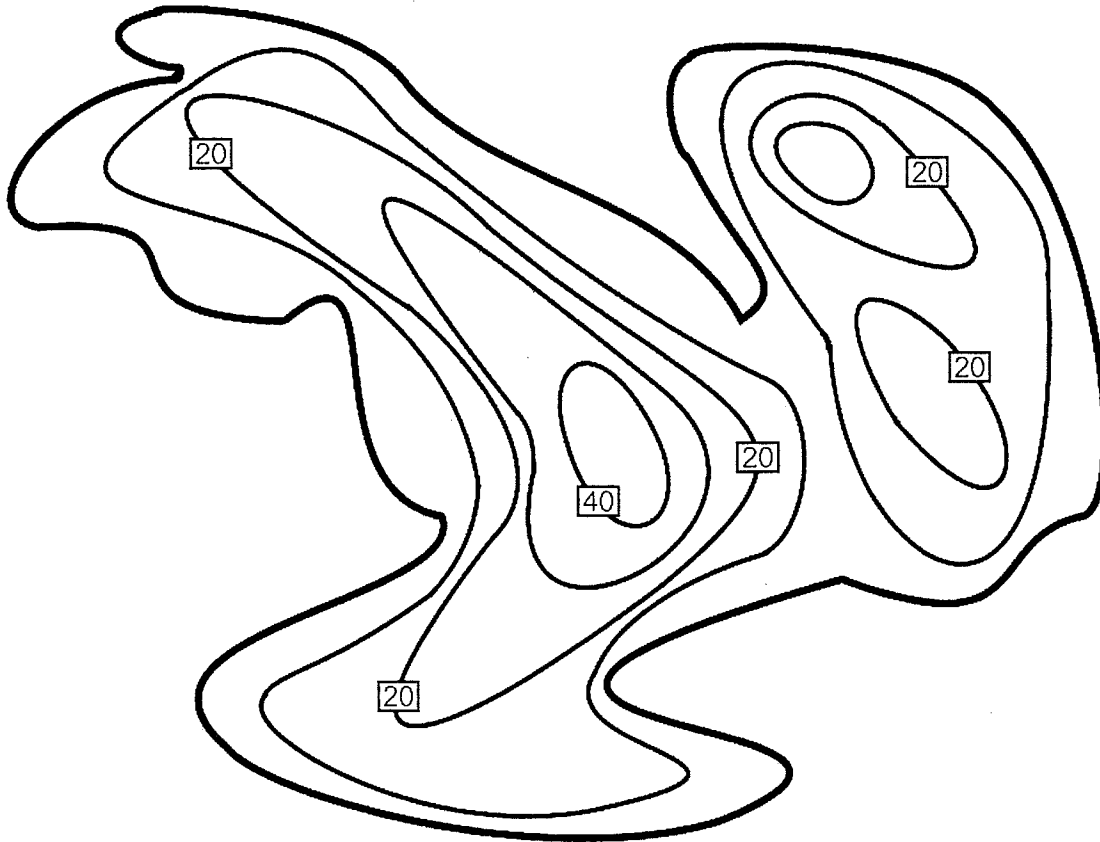


# Midwest Mathematical Modeling Contest

## October 2008

### Option 1

A housing development in Iowa surrounds a 120-acre lake. The diagram of the lake below shows the depth of the lake in feet. The homeowners association wants to stock the lake with various species of fish. Create a plan to stock the lake over a five year period with reasonable cost. Will the fish population in the lake be self-sufficient after five years or will additional maintenance be required? How many fish will be in the lake after five years, ten years, and twenty years? How many of each species could be harvested by homeowners each year?



### Option 2

Assume the state of Iowa passed a law requiring all gravel roads in Iowa to be paved. In recent years, other states have passed similar laws. Devise a plan to enact this law for the state of Iowa. Would the law be practical and beneficial to the citizens of Iowa?