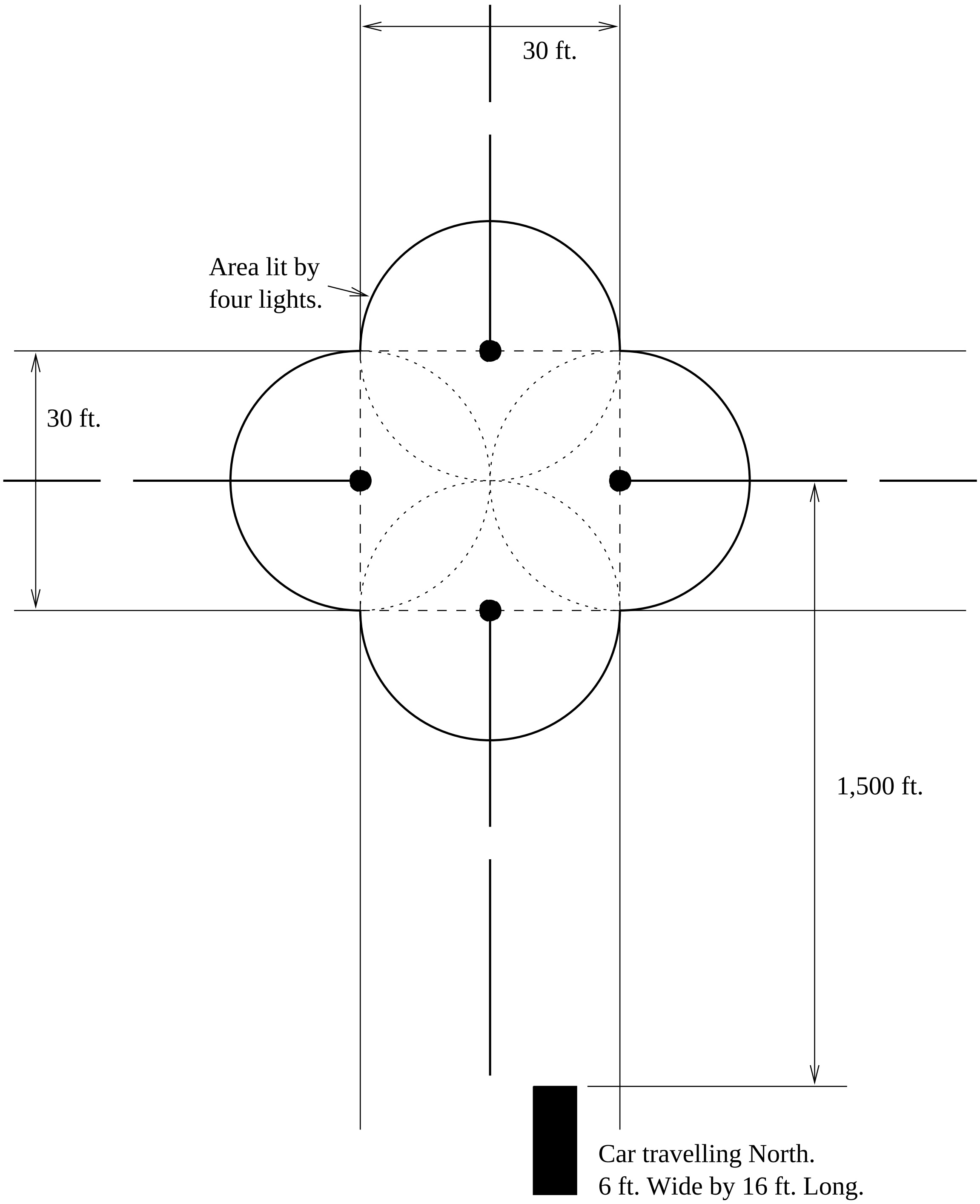
Math 120, Section A **Quiz 1** **1 October 1997**

Name____________________ Student Id:____________________

Instructions: You have 30 minutes for this quiz. Show all of your work.

Problem(30 points): Engineering has suspended four lights over a particular road intersection to make it safe at night. The road is oriented in a North-South, East-West direction. The lights are suspended at points where the center of each road meets the boundary of the intersection. The diagram below also indicates the initial position of a car travelling at $50\frac{\text{ft}}{\text{sec}}$ North. Also, the diagram shows the width of each road. *The diagram below is not to scale!*



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Answer these 4 questions:

(1) [10] Impose a coordinate system on the diagram. Write the equations for each "circle" of light.

(2) [5] What is the time in seconds when the car first begins to enter the lit area?

(3) [5] What is the time in seconds when the car first begins to exit the lit area?

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(3) [10] What is the distance travelled, Δx, between the first entry and first exit points as the car crosses the lit area?