

Section number:

Name of recitation instructor:

Names of team members:

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**Exercise 1** Why is it that the faulty zoom lens can cause the strategy given in the section “Mathematical Explanation” of the Lab Document to fail? Provide a position for the tribble to hide and a sequence of scans that would lead you to the wrong conclusion.

## Exercise 2

*Describe your algorithm by filling in your responses below.*

1. The first interval to scan is:  $[0,400]$
2. If the technician tells you, according to the sensor...
  - (a) the tribble is “in the interval”, your next scan is:
  - (b) the tribble is “not in the interval”, your next scan is:
3. Suppose now that based on previous scans, you’ve narrowed the tribble’s position down to within the interval  $[a, a + L]$ .
  - You will next scan the interval:
  - and if the technician tells you, according to the sensor...
    - (a) the tribble is “in the interval”, your following scan will be:
    - (b) the tribble is “not in the interval”, your following scan will be:

(more questions on the reverse)

*Record below your analysis of the worst case scenario uncertainty after  $n$  scans.*

The worst case scenario uncertainty after  $n$  scans:

Justification why this is the uncertainty level:

*Based on the analyses above, how many scans do you need to locate the tribble?*

The required number of scans:

Justification why this is the number: