Math120U, Quiz 1, 4/7/2004

Name _____ **Student number** _____

No notes allowed though you may use a non-graphical calculator. 20 minutes for the quiz.

A sprinkler on the lawn starts to spray water in a circular shape of radius 10 feet. Right now, a duck is 6 feet North of the sprinkler and starts running out of the watered region. Assume that the duck runs towards West in a straight line with a constant speed 0.2 feet per second.

(a). Impose a coordinate system and sketch the watered region and the duck's running path. Please mark the direction of each axis, the original location of the duck and necessary information of the watered region. [4 pts]

(b.) Give an equation that describes the duck's running path. [2 pts]

(c.) Find the coordinates of the duck after half a minute. [4 pts]

(d). Is the duck out of the watered region after half a minute? Explain. [5 pts]

(e). What are the coordinates when the duck just runs out of the watered region? [5 pts]