1

A suitable representation of states would be a 2d grid system. The width of the x-coordinates would be from 0-6, while the y-coordinates would be from 0-10. The initial state of the lamb would be (0,2), while the initial state for the would be (4,6). The walls would not be walkable, meaning they should not be possible to move onto.

For the lamb agent: The goal states would be each of the grass squares combined, meaning {((0,0),(6,0),(0,10),(6,10)}. The wolf would be considered a negative goal state that can change states one square at a time, similar to the lamb.

For the wolf agent: The lamb would be a goal state, which can also change states.

2

d) The sum of Manhattan distance between the lamb and each of the grass spots. This is because in order for the lamb to win, it needs to go through each of the goal states all together. The remaining path for it to go, will then be at least this path.