1. What are waypoints? Briefly describe how a bot can determine what waypoints are in the game.

Waypoints are empty game objects with a specific tag. If a given bot can’t find its way around an object it can search for the nearest waypoint by looking for objects with said tag and make a path to the nearest one.

2. Most path following algorithms represent the available paths in a game as a graph. Suggest how one might place waypoints in a maze to develop a graph of available paths so as to use available path finding algorithms to guide the actions of a bot.

If you position waypoints strategically as to form paths through the obstacles in your game, it will reduce the amount of possible paths available to navigate the game. Doing this while using the A\* algorithm will give it less choices to make thus increasing the efficiency of said algorithm.

3. Give a brief discussion of what the Dijkstra algorithm does. Give a brief discussion of what the A\* algorithm does.

Dijkstra:

From a given node we create two sets of paths, one that is all possible paths from said node to the next and another that has the paths for the shortest path tree. At each step we gather all possible paths and add the shortest one to the shortest path tree set. We continue to do this for each node.

A\*:

We consider a square grid with obstacles and the goal is to find a path from the starting cell to the target cell. At each node we pick the next node based on the lowest “F” parameter. The “F” parameter is the sum of the “G” and “H” parameters. “G” is the movement cost of moving from the staring point to a given point on the grid following a generated path. “H” is the estimated cost of moving from a given square to the target, destination, cell.

4. In 3D games Unity provides the Navmesh tools for path finding. Unfortunately 2D games cannot use Navmesh directly. There are online articles that claim (I haven't tired them) to add Navmesh to a 2D-like game. Find a URL for one of those.

a link to a reddit page whom itself has a link: <https://www.reddit.com/r/Unity2D/comments/7rfc82/how_to_do_2d_navmeshes/>

link in the reddit page:

<https://github.com/Unity-Technologies/NavMeshComponents>

5. In the 2D PacMan game, suggest a way to use waypoints to enable the ghost to patrol and chase the PacMan based on the ideas discussed in the Stealth Game video referenced in the notes.

Have each ghost choose the waypoint that is closest to the player and navigate towards said waypoint.