TRUE FALSE

1. Both BFS and Dijkstra's algorithm are guaranteed to find the shortest path.   ☐   ☐

2. In the potential fields method, a desired direction of motion can be found for any point in the arena.   ☐   ☐

3. In order for the potential $\phi = a((x-x_0)^2+(y-y_0)^2)$ to be suitable as a potential for a navigation goal, should a be larger than 0 or smaller than 0?

1. This is false. Dijkstra's algorithm is guaranteed to find the shortest path from the start point to the end point (if such a path exists), but BFS is not (and it can get even get stuck!)

2. This is true: Once the potential field has been defined, the gradient can be computed at any (x,y) (except inside obstacles, of course) and will then (after normalization and sign reversal) provide the direction of motion.

3. It should be larger than 0, so that the potential takes the shape of a bowl (rather than an upside-down bowl!).