ECS 170 Project 1 Part 1

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1. For the cost function

```
// New height divided by old height
public double getCost(final Point p1, final Point p2)
{
    return (getTile(p2) / (getTile(p1) + 1));
}
```

We create an admissible heuristic by relaxing the rule that you can only move to an adjacent tile.

This is admissible, because it is akin to having every tile exactly next to the goal state. The value generated by this heuristic will always be less than or equal to the actual cost to get to the goal state because any actual path to the goal state will include

We can show this is admissible by induction.

Proof. Base case:

Let S_n be the goal state.

Then $h(S_n) = 0$. This is clearly not an overestimate.

Inductive case:

Assume there are m states on the optimal path to the goal state from S_n.

Then $h(S_n) \leq \sum_{i=0}^{m} cost()$ □