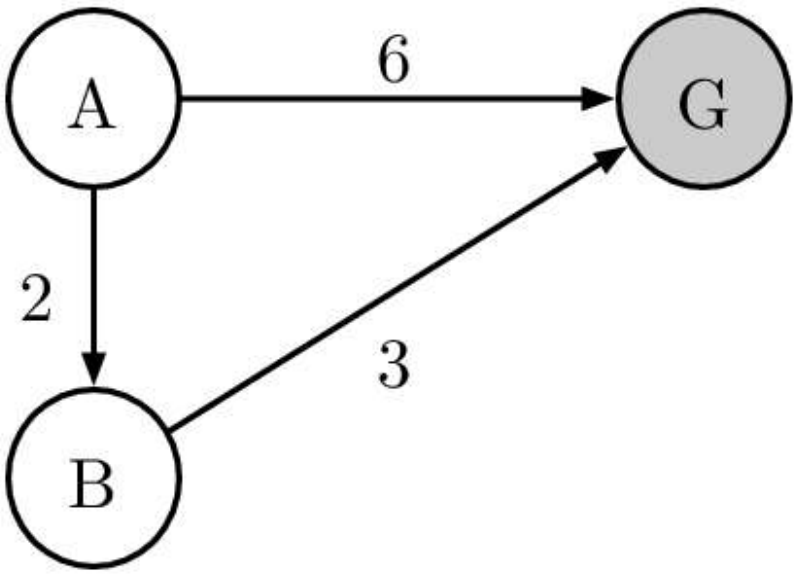
Q2: Search: Heuristic Function Properties

Problem 2: Search: Heuristic Function Properties

For the following questions, consider the search problem shown in the figure below. It has only three states, and three directed edges. A is the start node and G is the goal node. In the table below, four different heuristic functions are defined, numbered I through IV.



	$h(A)$	$h(B)$	$h(G)$
I	4	1	0
II	5	4	0
III	4	3	0

IV	5	2	0

Part 1: Admissibility and Consistency

Part 1.1

2/2 points (ungraded)

For each heuristic function below, check the corresponding box if it is an *admissible* heuristic.

- [x] I
- [ ] II
- [x] III
- [x] IV

✔

Submit

✔ Correct (2/2 points)

Part 1.2

2/2 points (ungraded)

For each heuristic function below, check the corresponding box if it is a *consistent* heuristic.

- [ ] I
- [ ] II
- [x] III

- [ ] IV

✔

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✔ Correct (2/2 points)

Part 2: Function Domination

Recall that *domination* has a specific meaning when talking about heuristic functions.

Part 2.1

1/1 point (ungraded)

Which one of the following statements about the relationship between heuristic functions III and IV is true?

- ○ Heuristic function III dominates IV.
- ○ Heuristic function IV dominates III.
- ◉ Heuristic functions III and IV have no dominance relationship. ✔

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✔ Correct (1/1 point)

Part 2.2

1/1 point (ungraded)

Which one of the following statements about the relationship between heuristic functions I and IV is true?

- Heuristic function I dominates IV.
- Heuristic function IV dominates I. ✔
- Heuristic functions I and IV have no dominance relationship.

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✔ Correct (1/1 point)