# Autonomous Robotics

## Planning

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# Announcements

Have a good spring break!

Homework 4 due after spring break!

How did the midterm go?

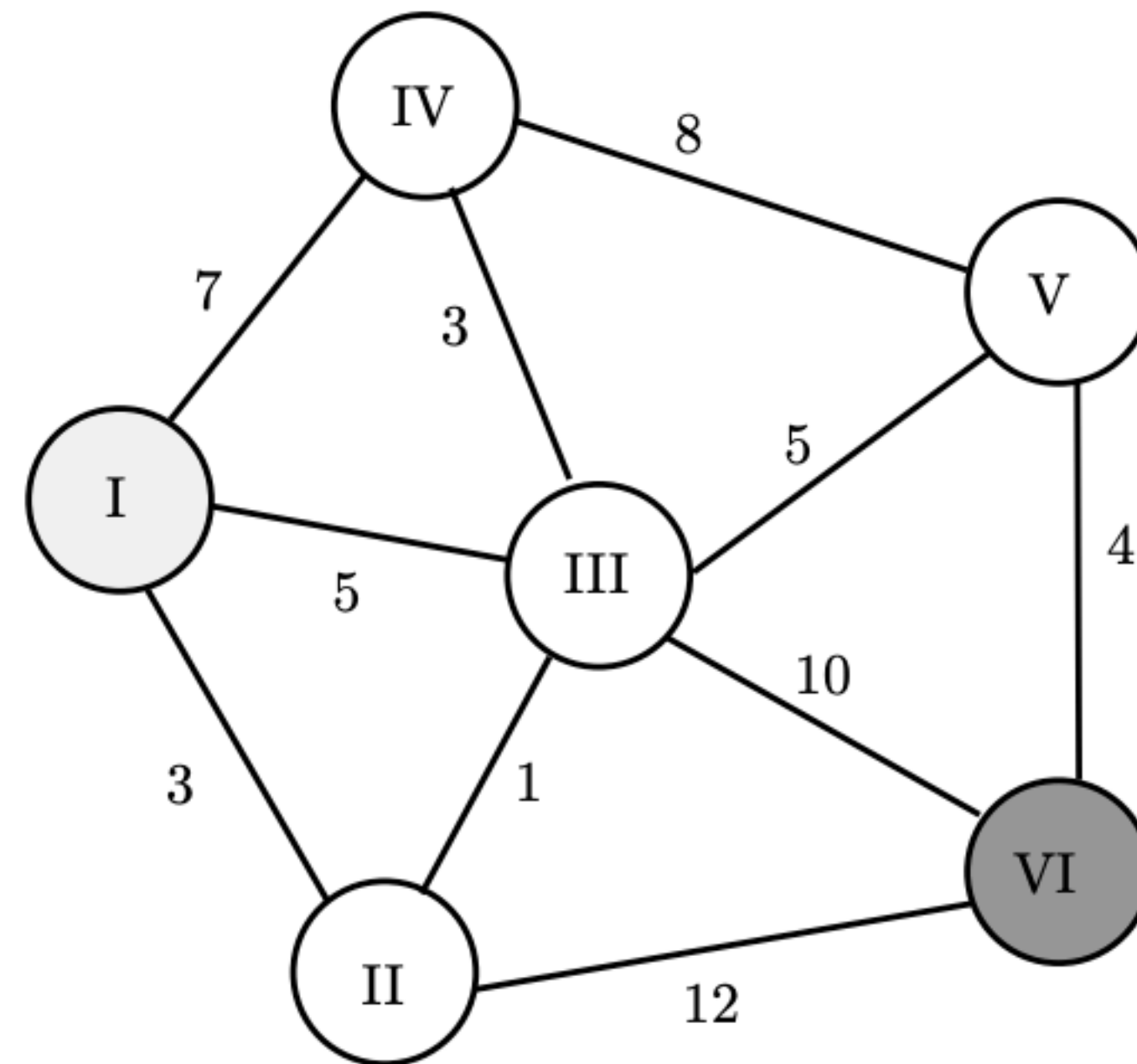Josiah Hanna, University of Wisconsin — Madison

# Learning Outcomes

After today's lecture, you will:

- Be able to explain key differences in different sampling-based planners.

- Understand the comparative advantages of sampling-based and graph-based planners.

# Graph-based Planning

- Properties: completeness, optimality, space & time complexity.

# Strengths / Weaknesses of Graph Planning

- Strengths:

  - Deterministic and discrete makes it possible to proof properties like completeness.

  - Many robotics planning problems are naturally formulated as discrete planning problems.

- Weaknesses:

  - Need to discretize the state space if continuous. Then only have *resolution completeness.*

  - May require large amounts of memory or large computation time.