Minimum Spanning Trees

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Objectives

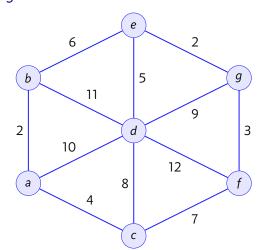Your Objectives:

► Define minimum spanning tree and explain its properties
► List some problems that MSTs solve
► Explain some variations of the MST
► Specific algorithms presented in other video(s).

A Minimum Spanning Tree

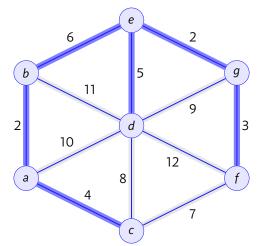
A Minimum Spanning Tree

Properties of MSTs

- All connected graphs have one.
- May have more than one.
- $|E| = |V| - 1$
- Other tree properties hold...

Variations

- Maximum spanning tree
- "minimum" spanning subgraph
- Minimum spanning forest
- Second minimum spanning tree: Compute MST, then try again $|E|$ times, removing a different edge from the MST each time.
- In contests: this algorithm is easy, so contest problems will try to disguise the fact that MST will solve it.