

Prim's  $O(m + n \log n)$

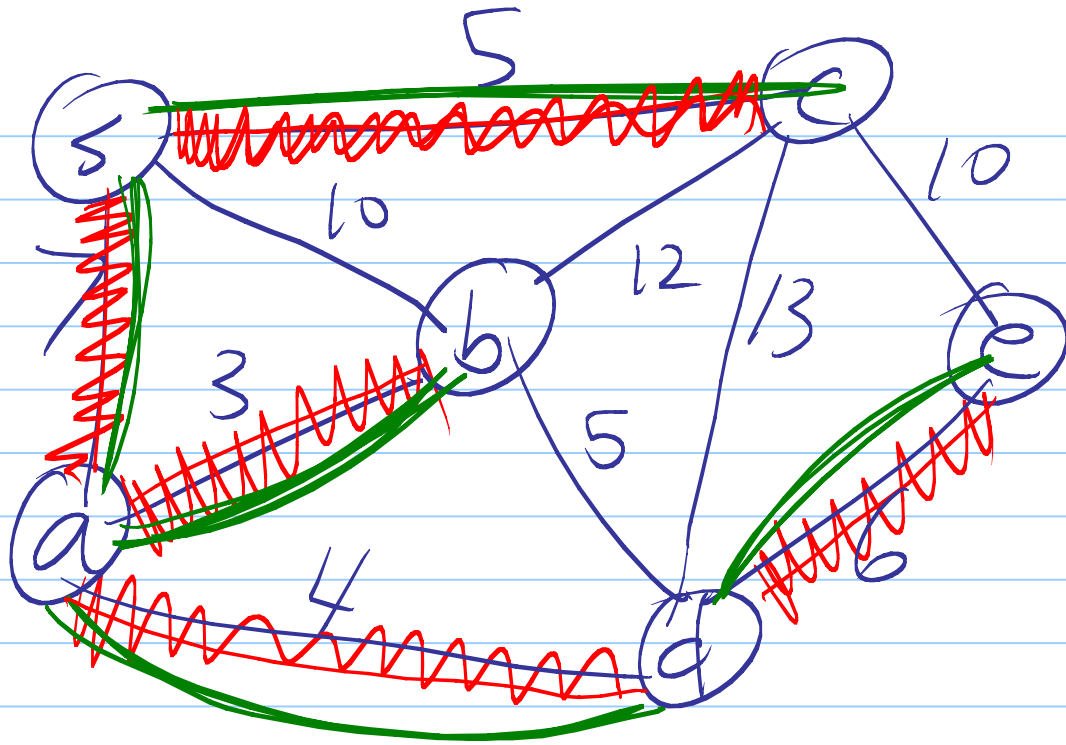
Kruskal's Minimum Spanning Tree Alg

Also greedy alg.

$O(m \log m)$  Sorts all edges from smallest to highest weight.

repeatedly  $O(m)$  Repeatedly add next to  $T$  unless it creates a cycle

$(O(m \cdot \text{inverse ackerman}(n)))$

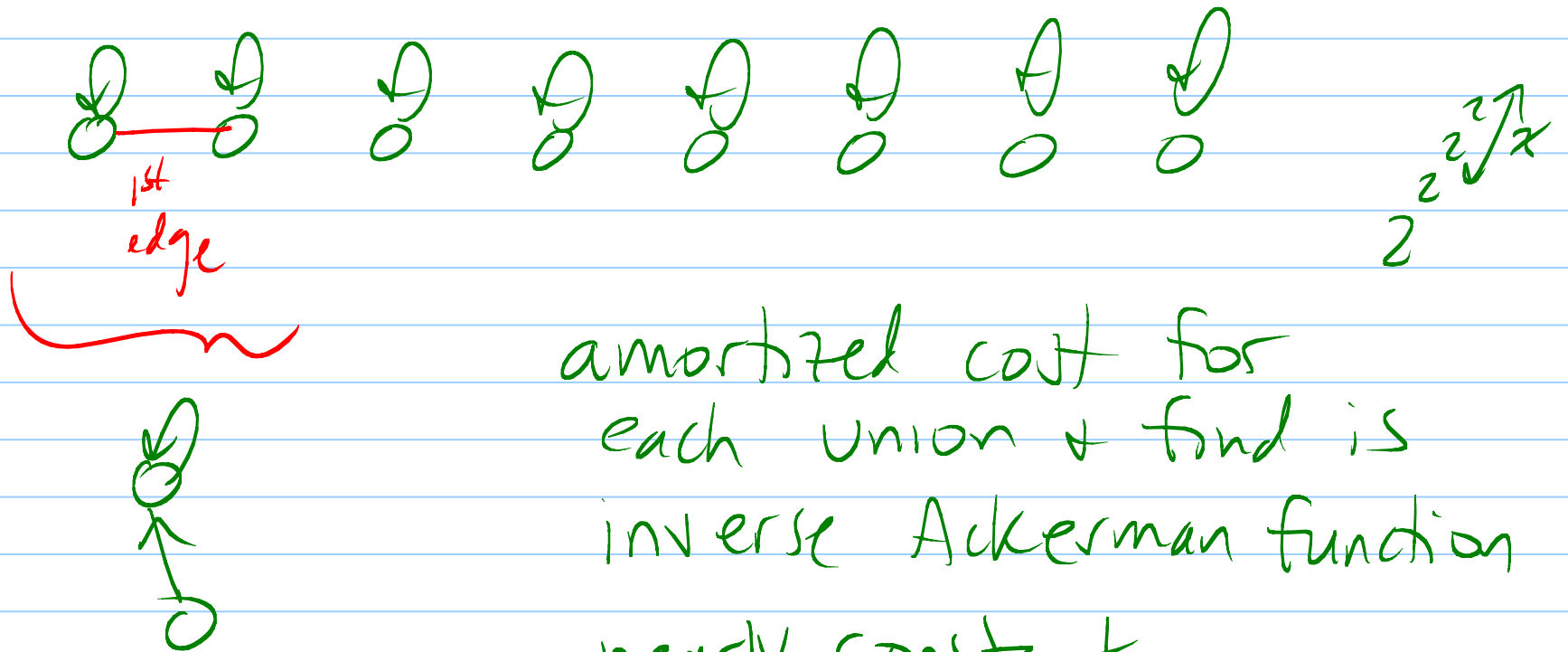


Kruskal's  
done when  
 $n-1$  edges  
in tree

See soon how to determine if there  
is a cycle in  $O(n+m)$  time

Data Structure called

Union-Find



amortized cost for  
each union + find is  
inverse Ackerman function  
nearly constant

How does Prim's Alg avoid the  
Sorting cost

each vertex (using priority queue)

remembers it's min weight  
connection

doesn't sort all adjacent  
edges by weight