

# Suppose I have a new heap:

|              | Binary Heap | Fibonacci Heap |
|--------------|-------------|----------------|
| Remove Min   | $O(\lg(n))$ | $O(\lg(n))$    |
| Decrease Key | $O(\lg(n))$ | $O(1)^*$       |

## What's the updated running time?

```
PrimMST(G, s):
6   foreach (Vertex v : G):
7       d[v] = +inf
8       p[v] = NULL
9   d[s] = 0
10
11   PriorityQueue Q // min distance, defined by d[v]
12   Q.buildHeap(G.vertices())
13   Graph T          // "labeled set"
14
15   repeat n times:
16       Vertex m = Q.removeMin()
17       T.add(m)
18       foreach (Vertex v : neighbors of m not in T):
19           if cost(v, m) < d[v]:
20               d[v] = cost(v, m)
21               p[v] = m
```