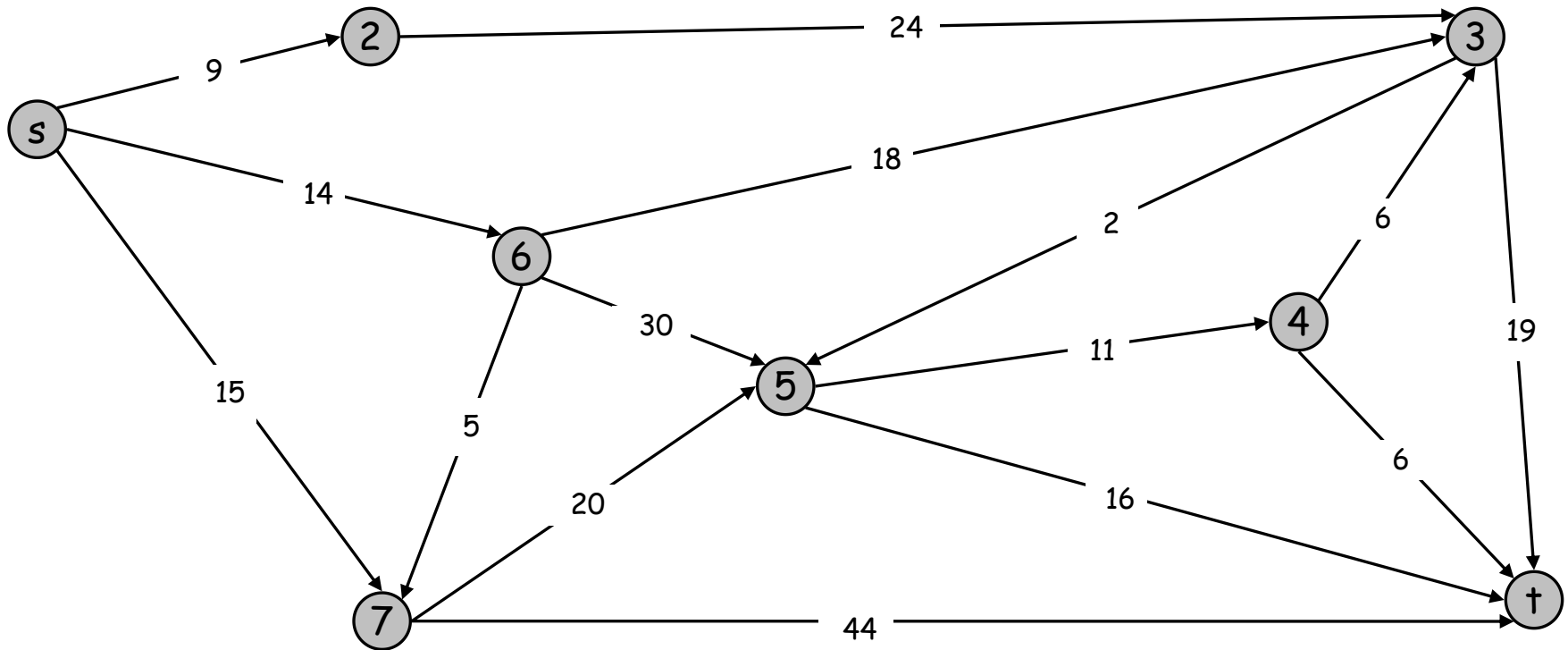


Dijkstra's Shortest Path Algorithm

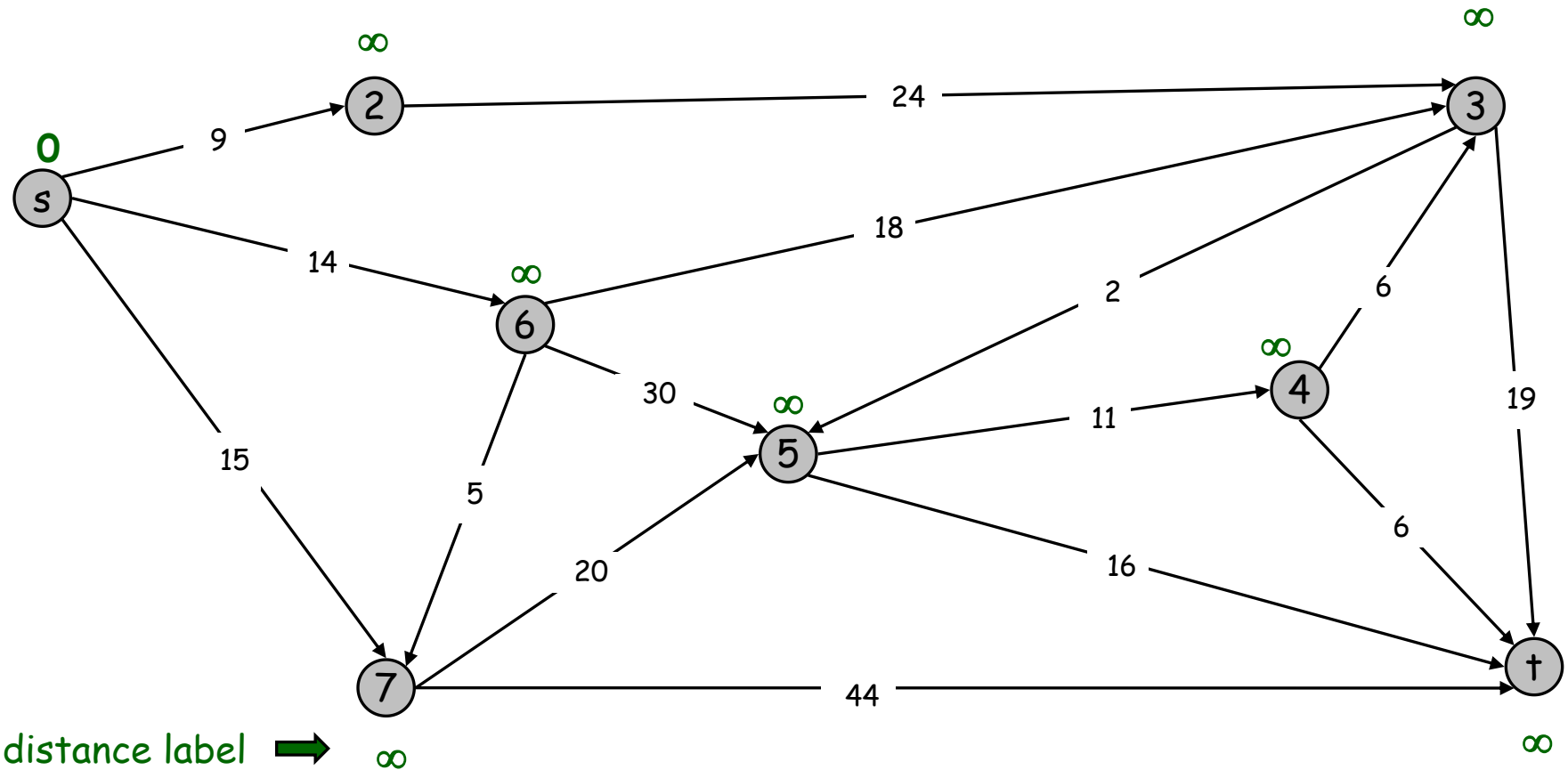
Find shortest path from s to t.



Dijkstra's Shortest Path Algorithm

$S = \{ \}$

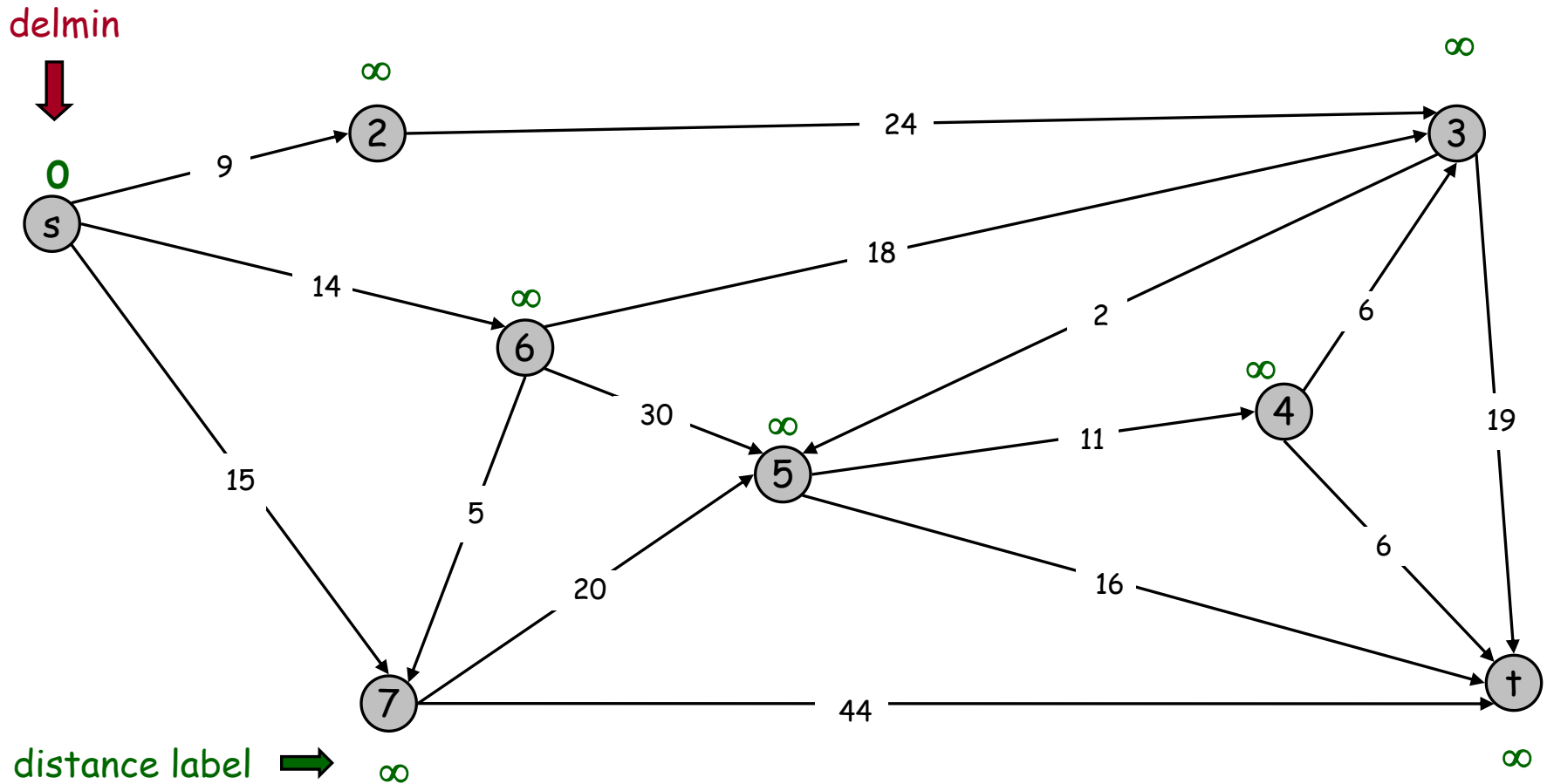
$PQ = \{ s, 2, 3, 4, 5, 6, 7, \dagger \}$



Dijkstra's Shortest Path Algorithm

$S = \{ \}$

$PQ = \{ s, 2, 3, 4, 5, 6, 7, \dagger \}$



Dijkstra's Shortest Path Algorithm

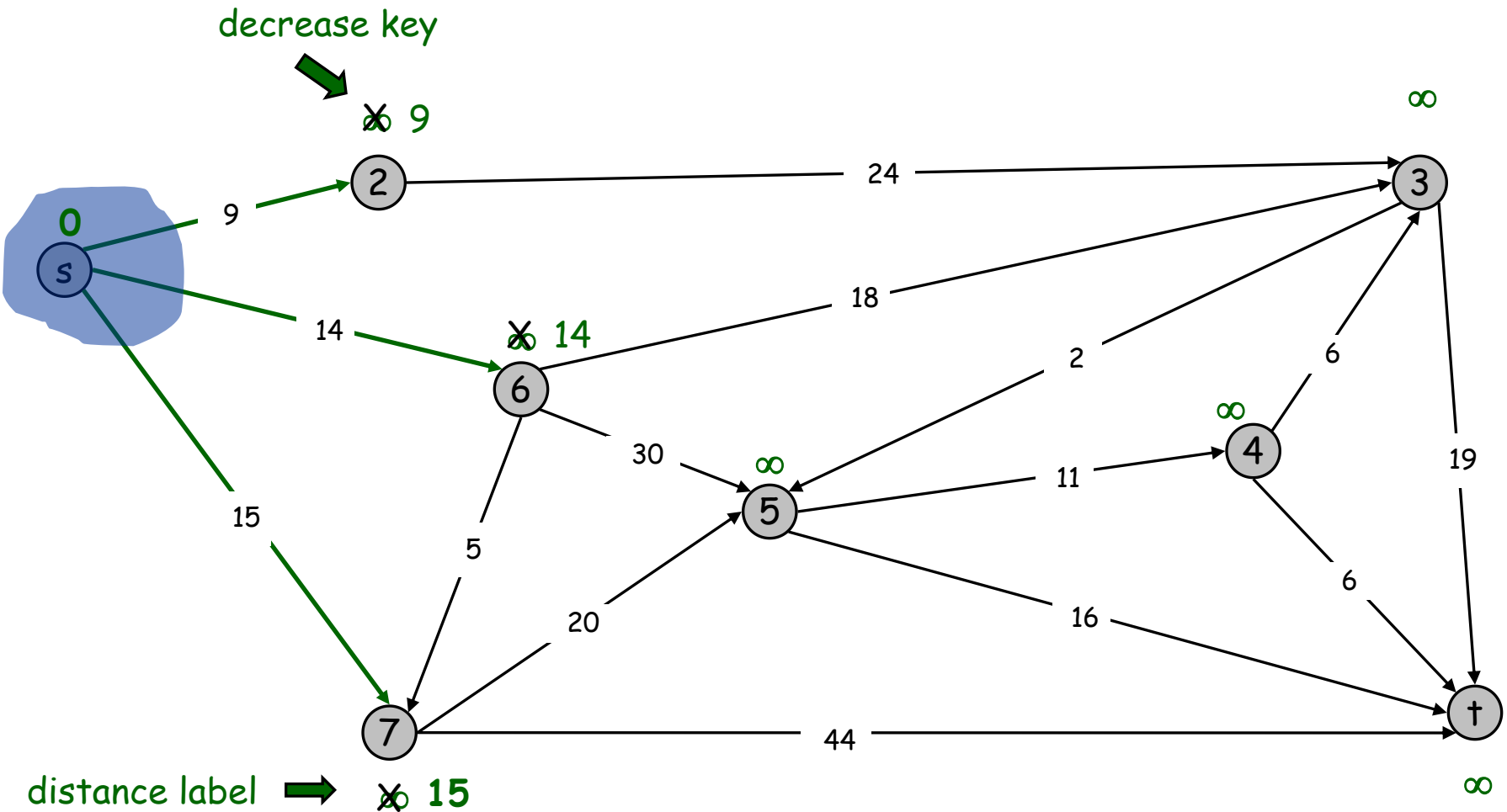
$S = \{s\}$

$PQ = \{2, 3, 4, 5, 6, 7, \dagger\}$

decrease key



~~9~~

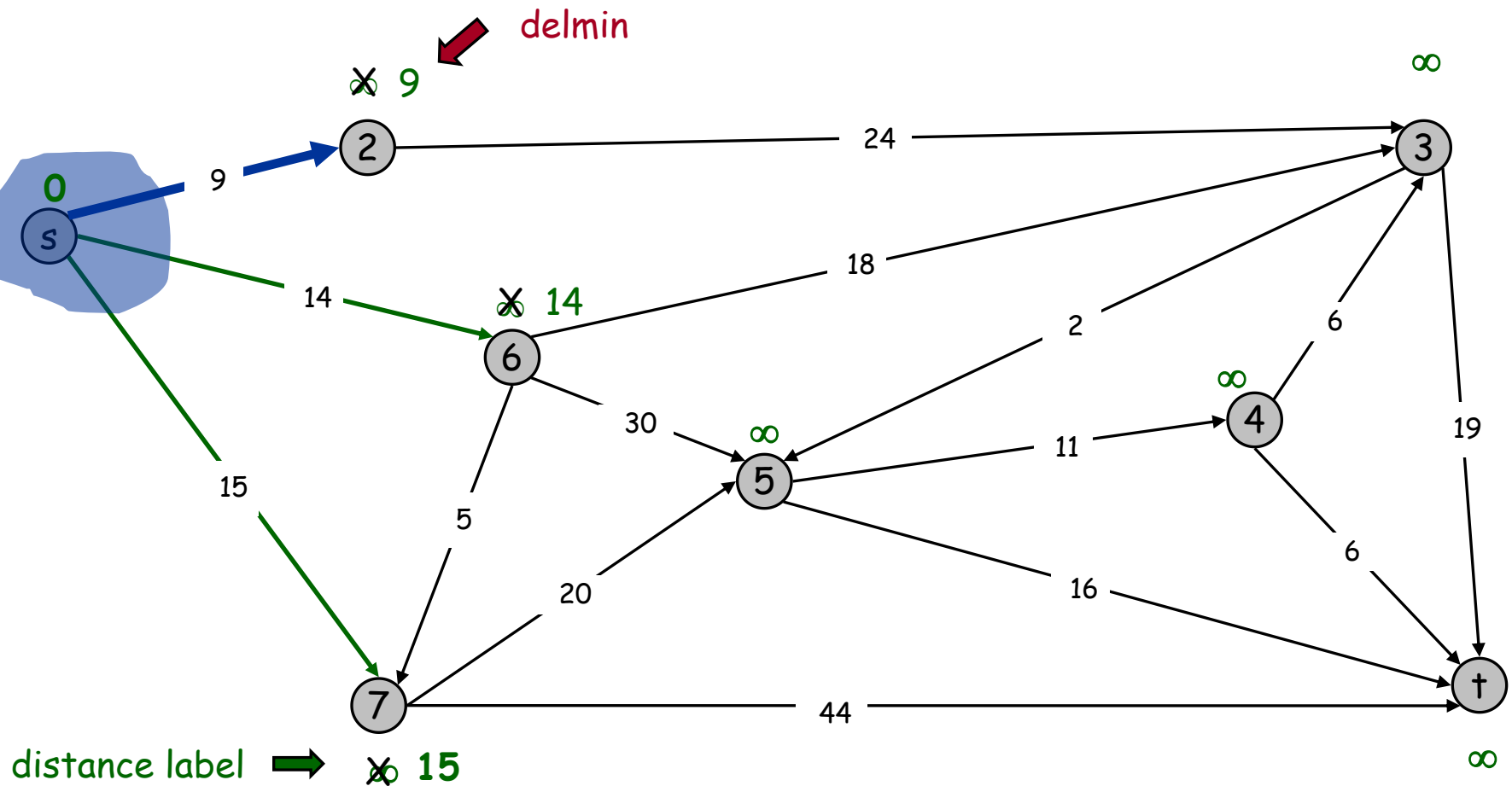


distance label  ~~15~~

Dijkstra's Shortest Path Algorithm

$S = \{s\}$

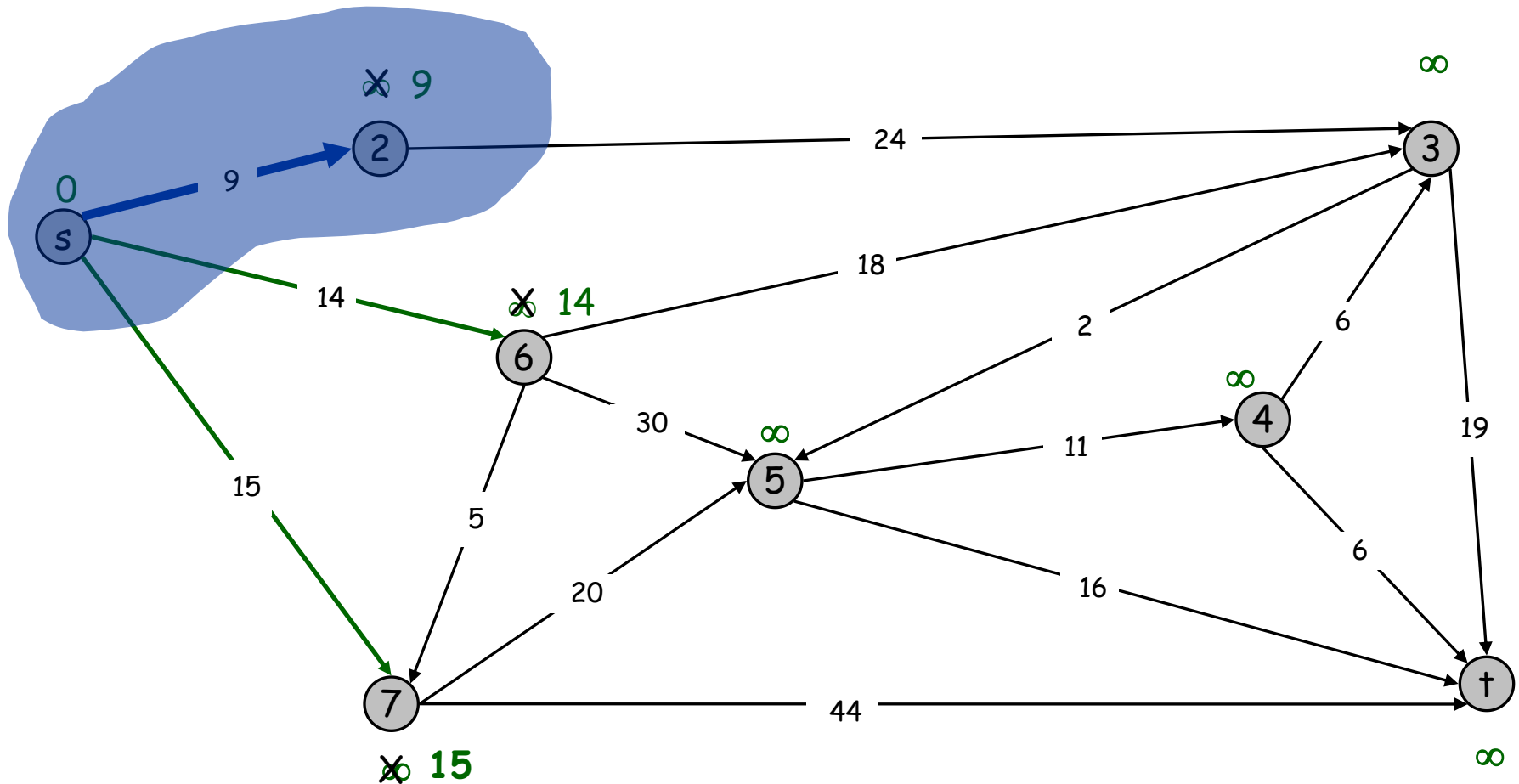
$PQ = \{2, 3, 4, 5, 6, 7, \dagger\}$



Dijkstra's Shortest Path Algorithm

$S = \{s, 2\}$

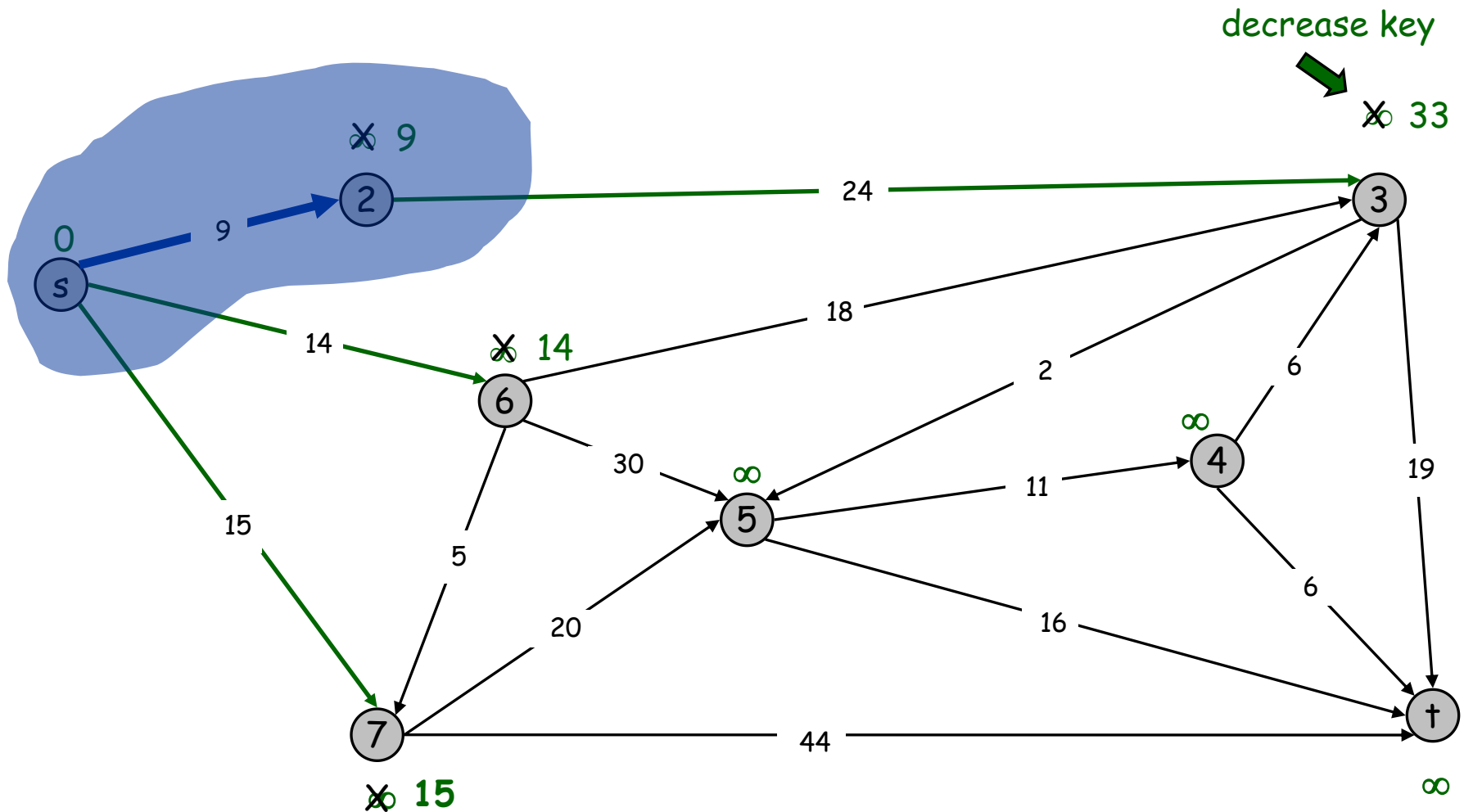
$PQ = \{3, 4, 5, 6, 7, \dagger\}$



Dijkstra's Shortest Path Algorithm

$S = \{s, 2\}$

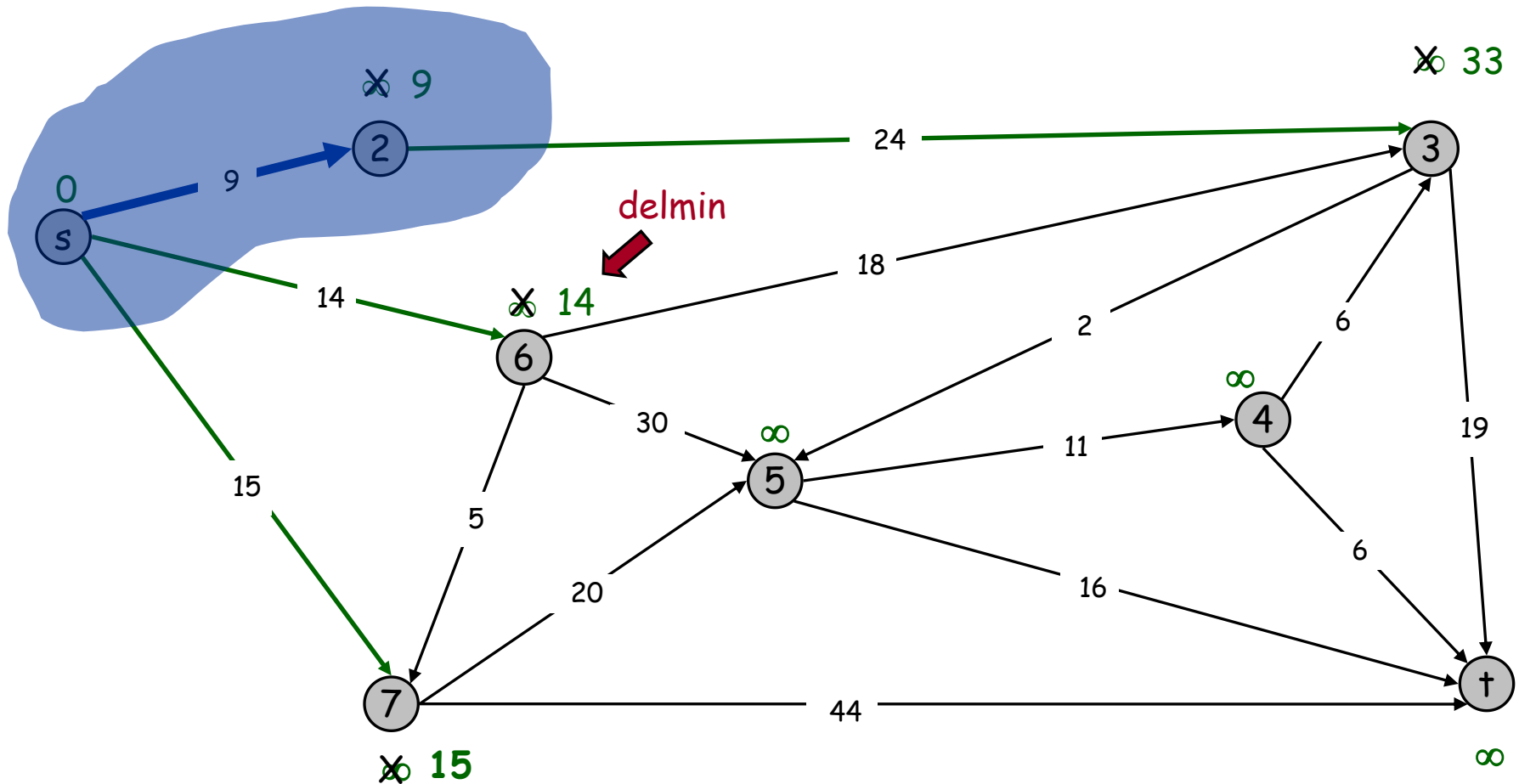
$PQ = \{3, 4, 5, 6, 7, \dagger\}$



Dijkstra's Shortest Path Algorithm

$S = \{s, 2\}$

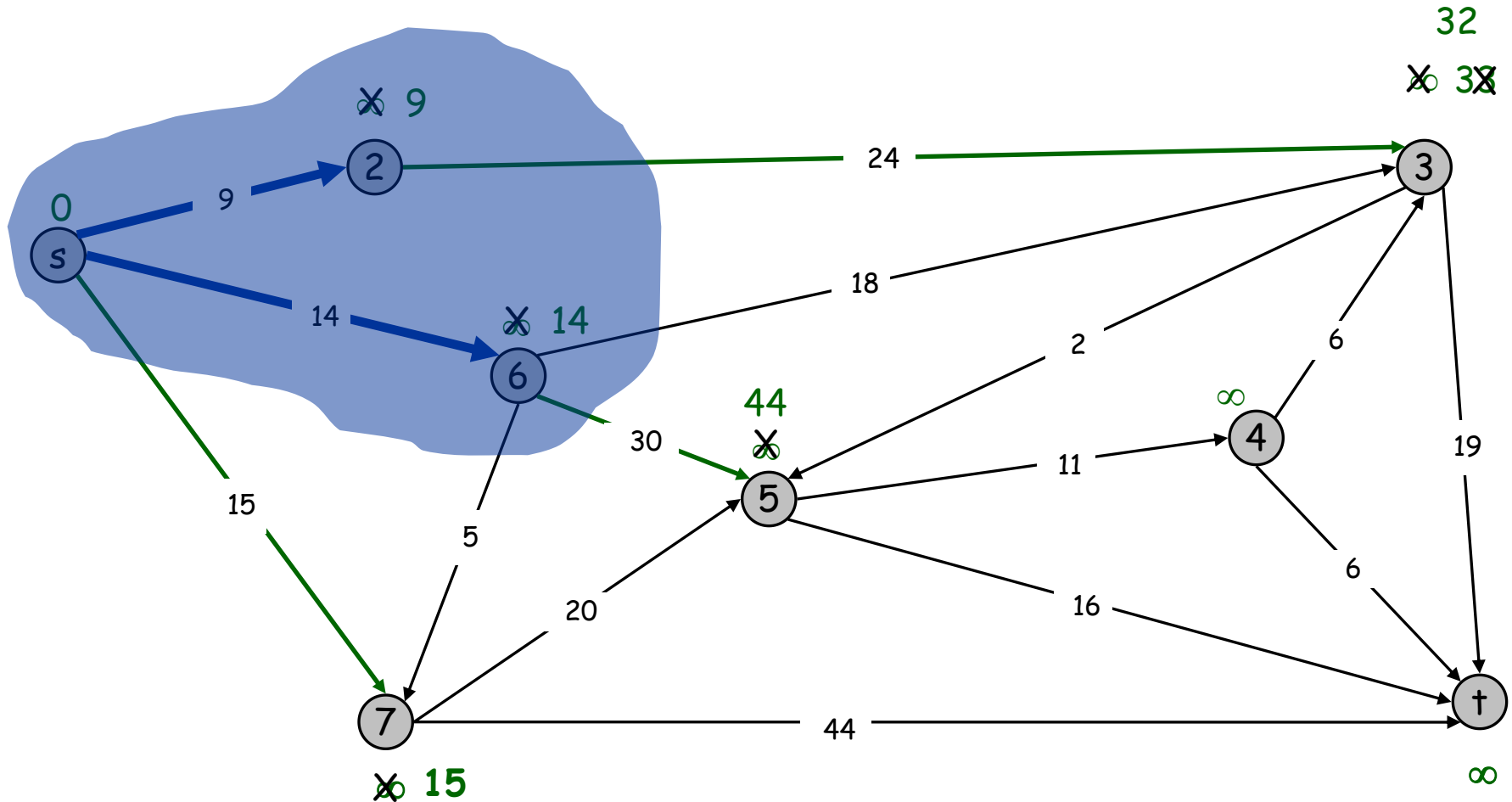
$PQ = \{3, 4, 5, 6, 7, \dagger\}$



Dijkstra's Shortest Path Algorithm

$S = \{s, 2, 6\}$

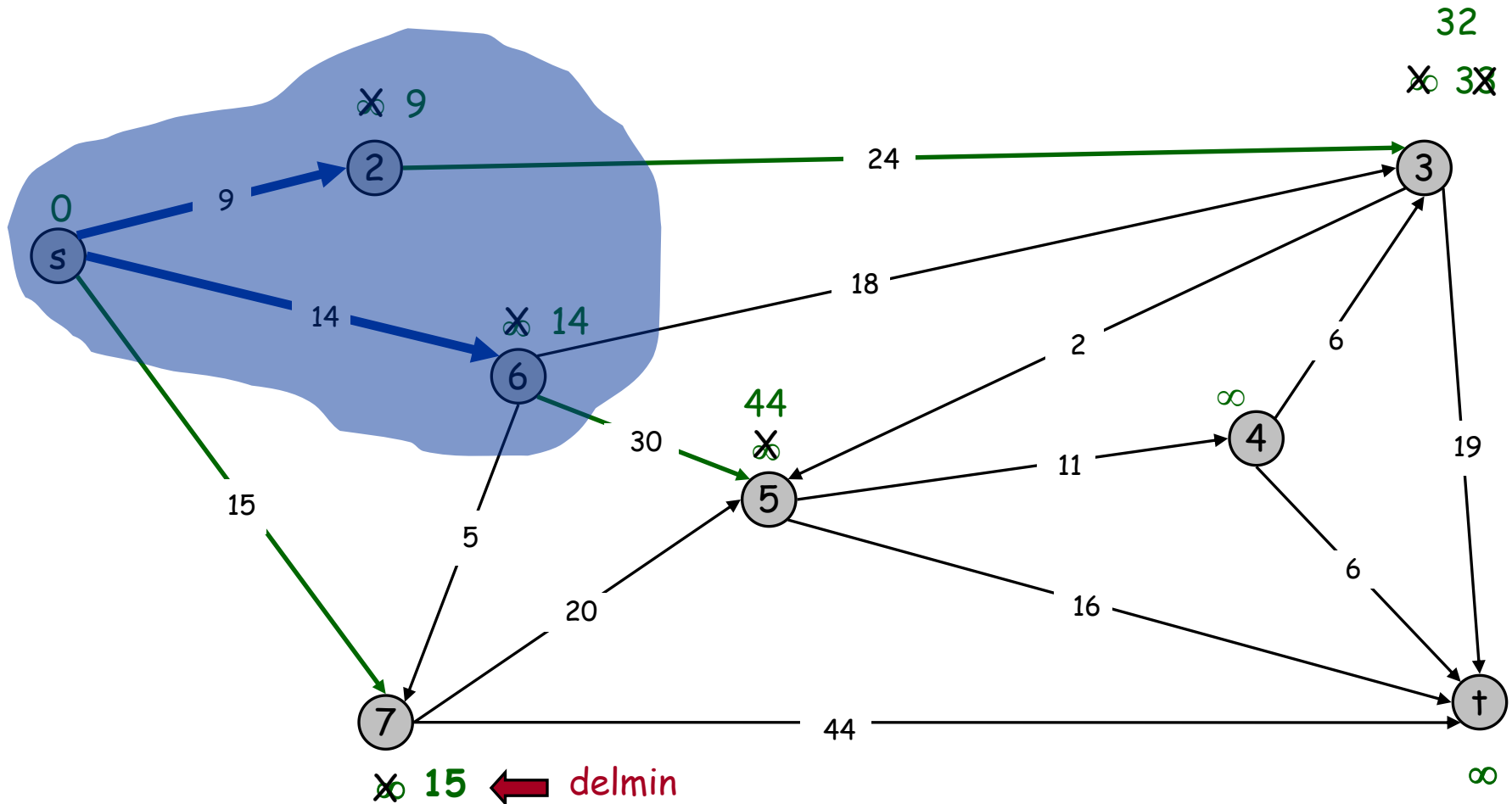
$PQ = \{3, 4, 5, 7, \dagger\}$



Dijkstra's Shortest Path Algorithm

$S = \{s, 2, 6\}$

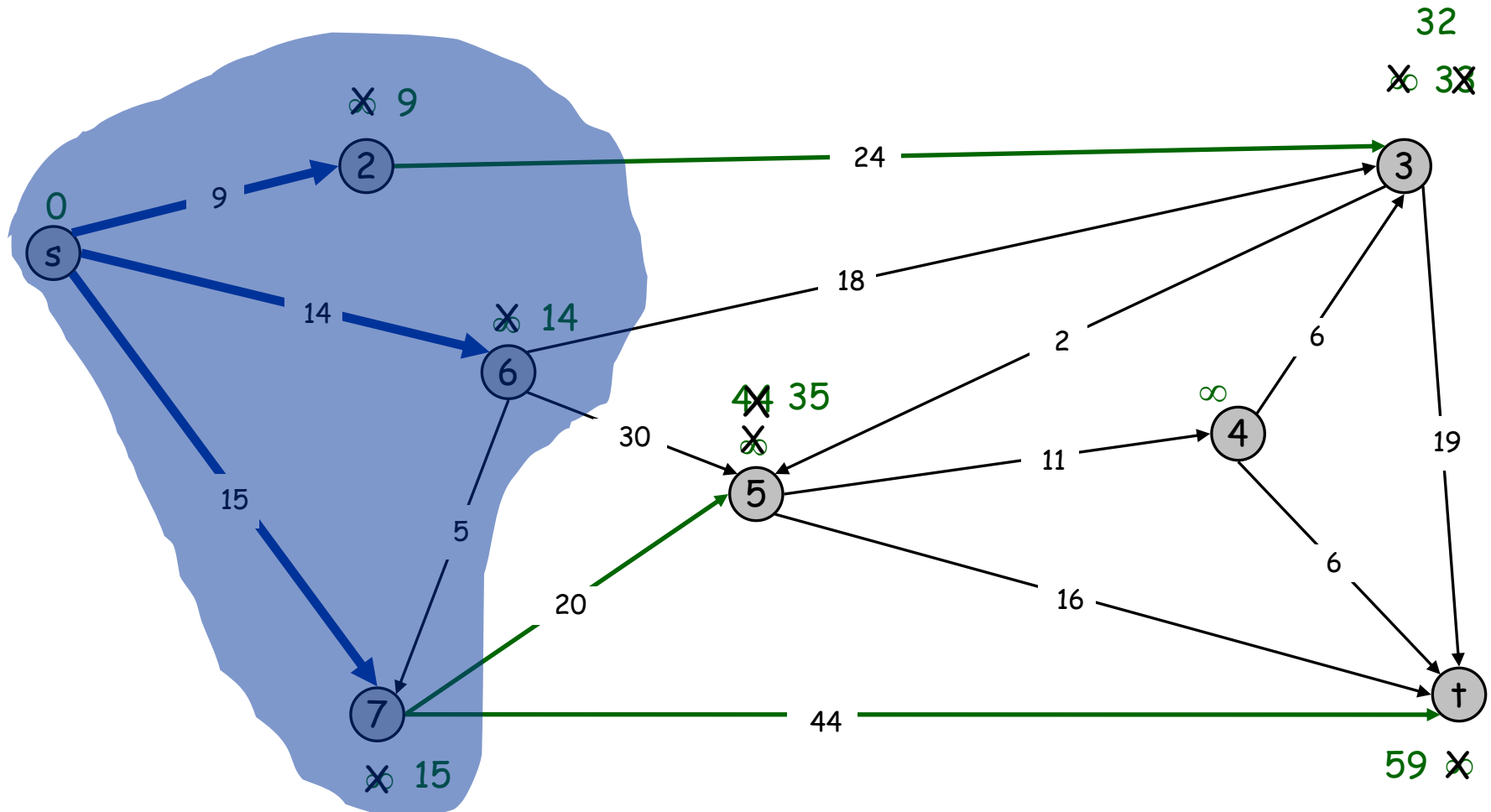
$PQ = \{3, 4, 5, 7, \dagger\}$



Dijkstra's Shortest Path Algorithm

$S = \{s, 2, 6, 7\}$

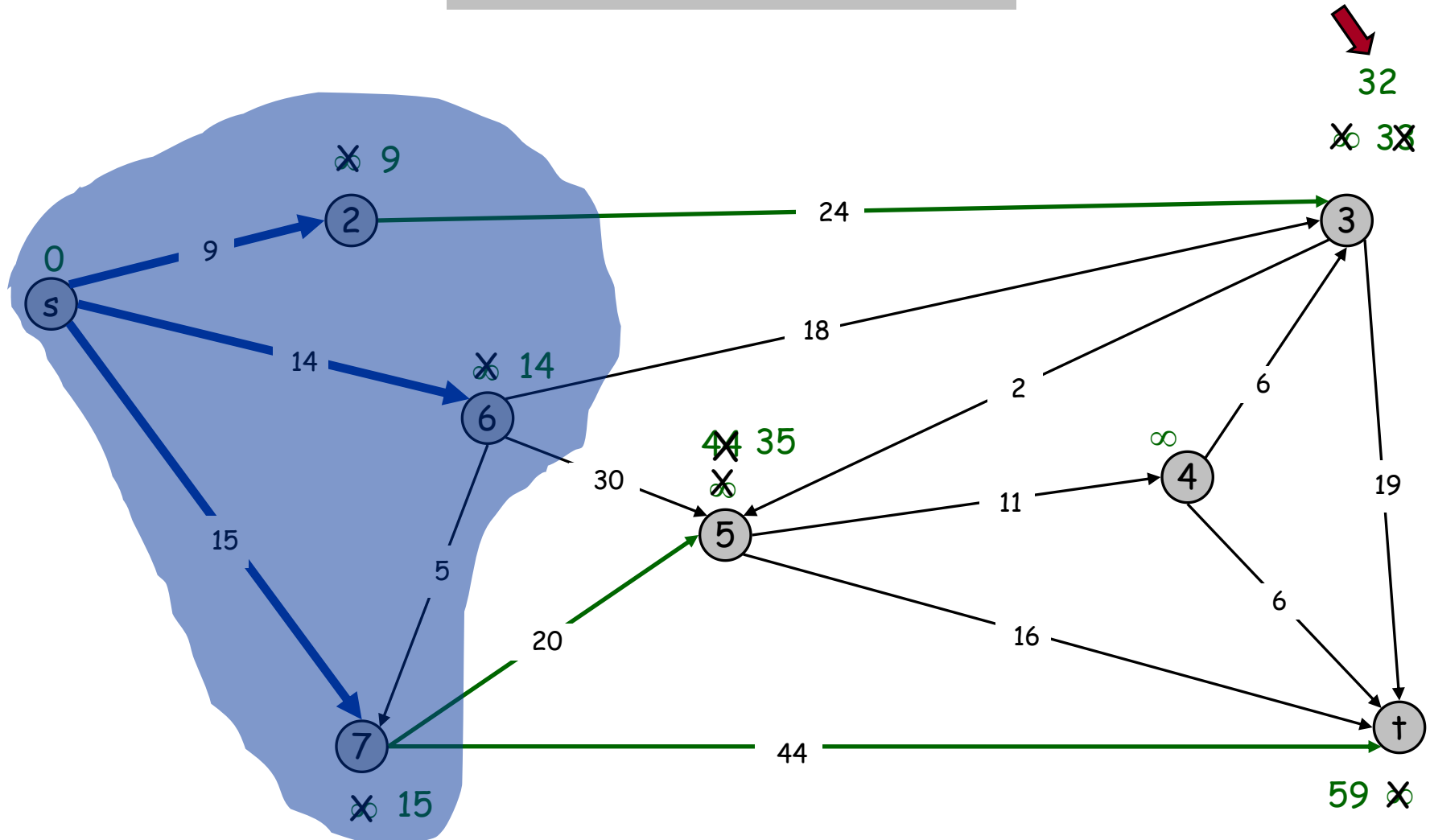
$PQ = \{3, 4, 5, \dagger\}$



Dijkstra's Shortest Path Algorithm

$S = \{s, 2, 6, 7\}$

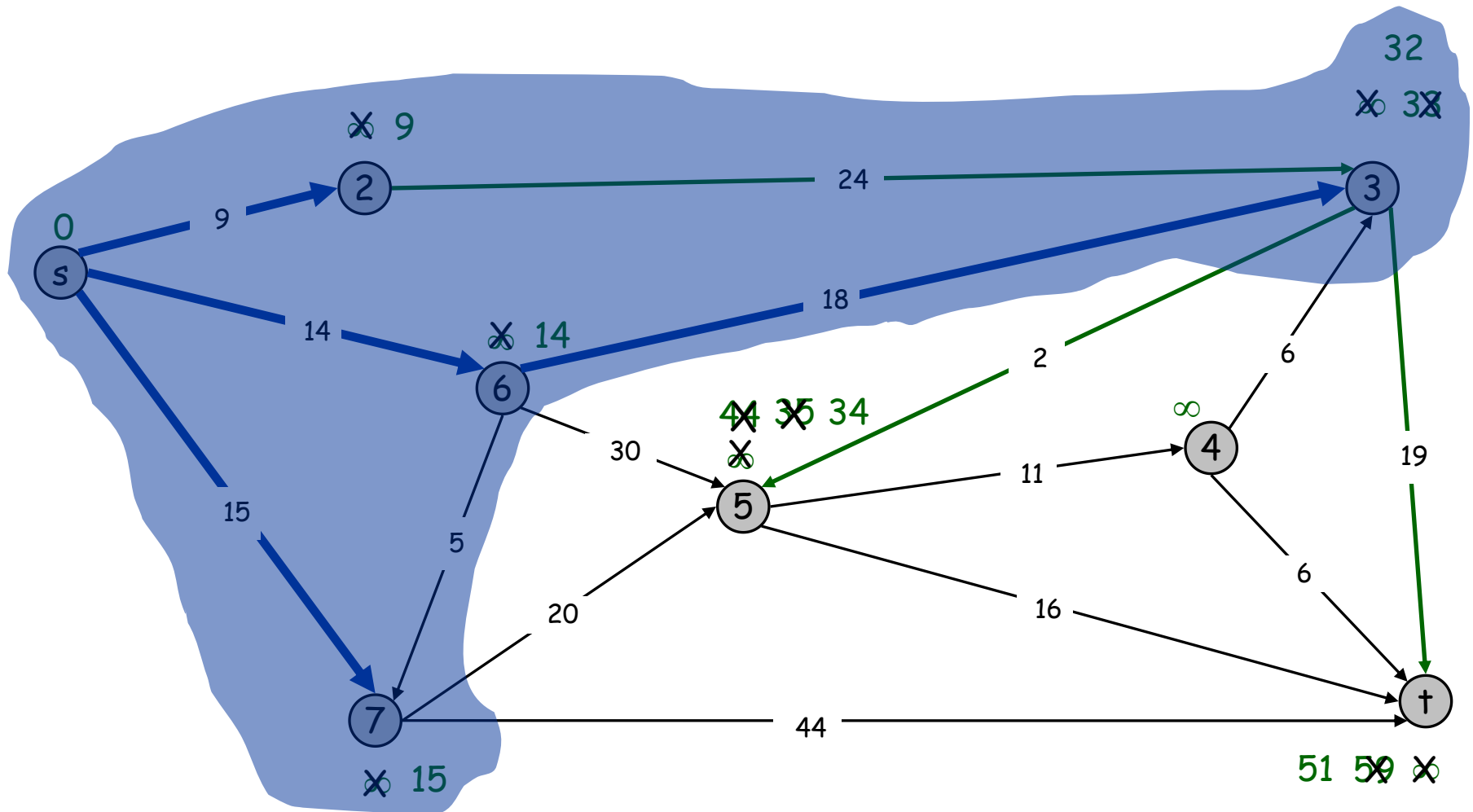
$PQ = \{3, 4, 5, \dagger\}$



Dijkstra's Shortest Path Algorithm

$S = \{s, 2, 3, 6, 7\}$

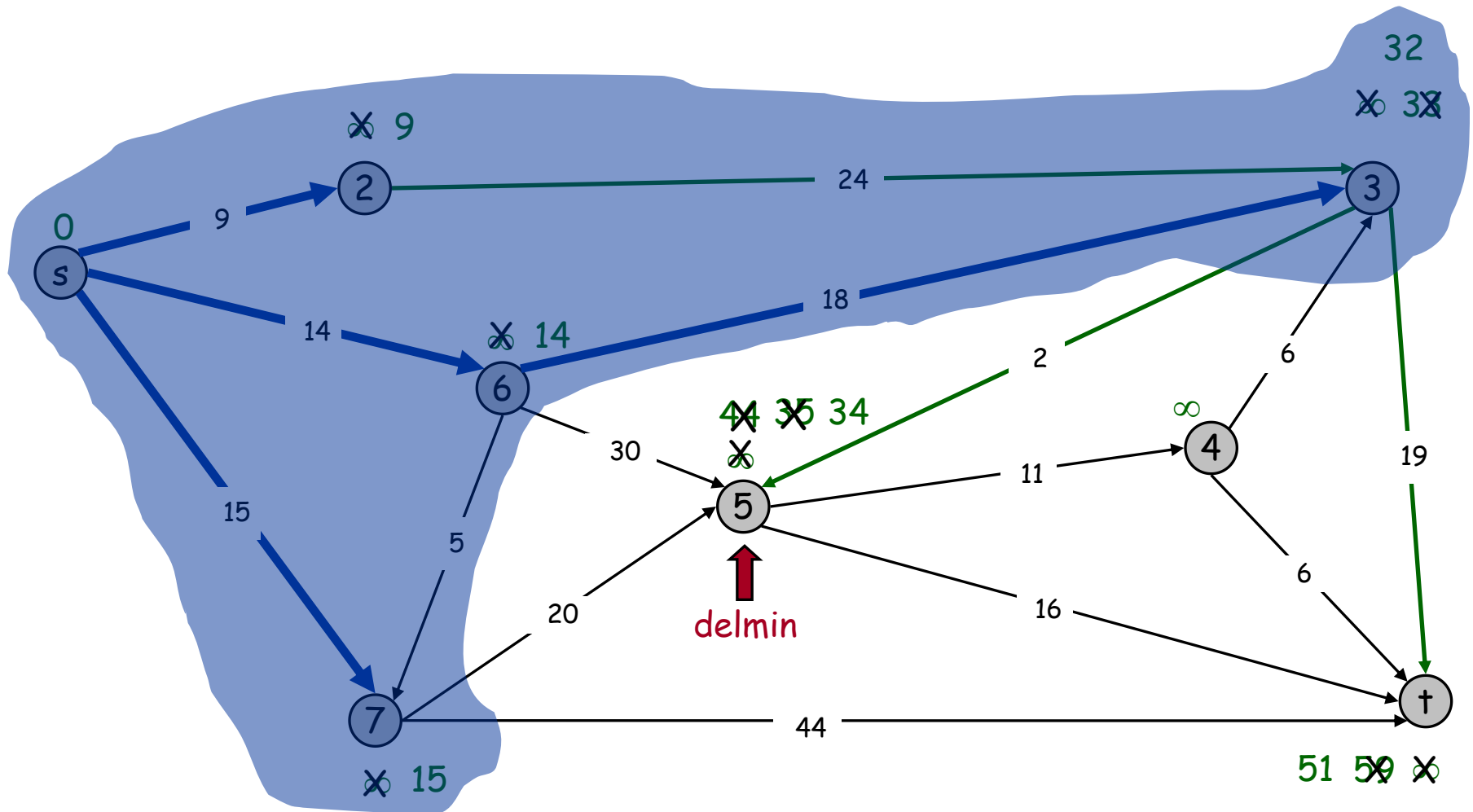
$PQ = \{4, 5, \dagger\}$



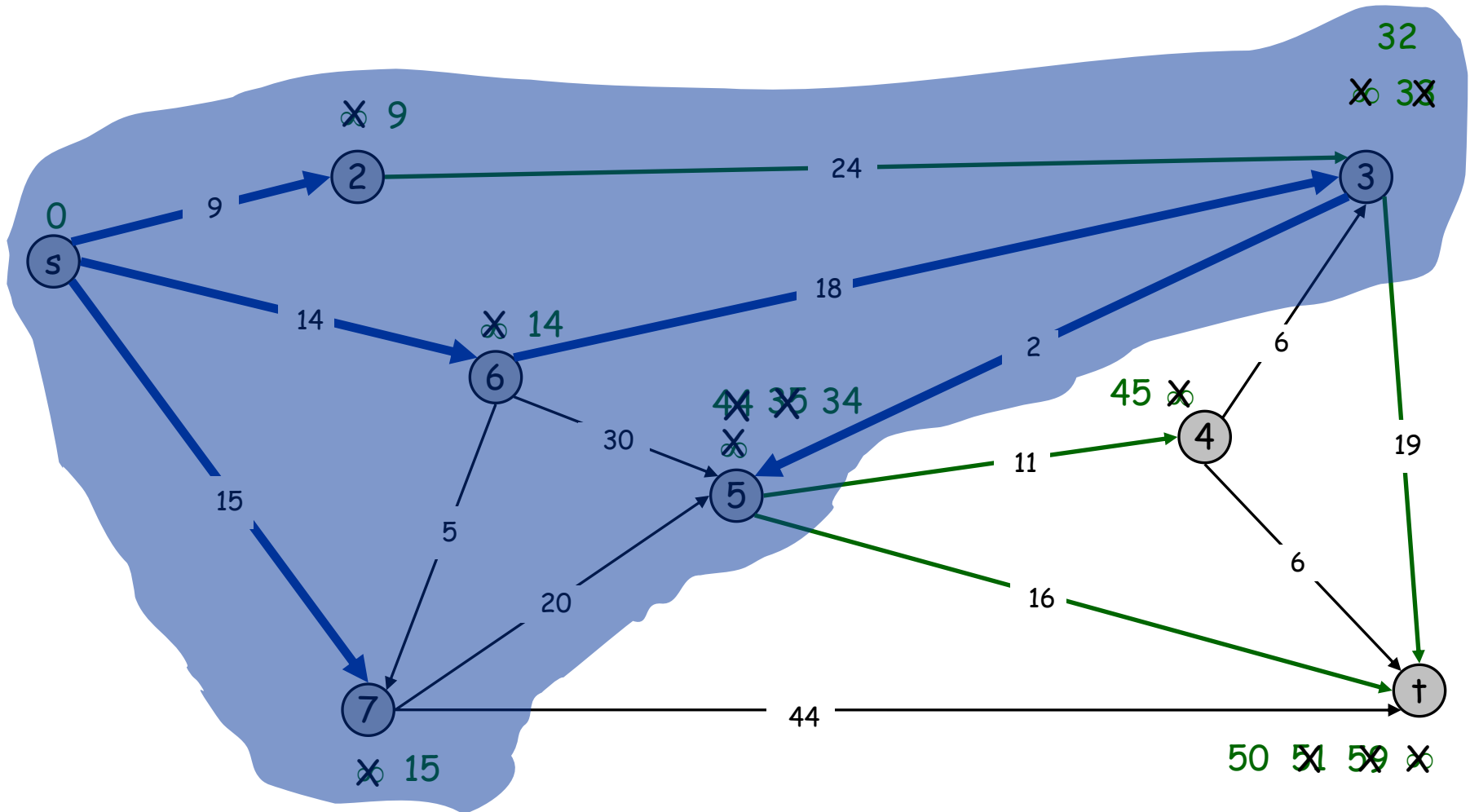
Dijkstra's Shortest Path Algorithm

$S = \{s, 2, 3, 6, 7\}$

$PQ = \{4, 5, \dagger\}$



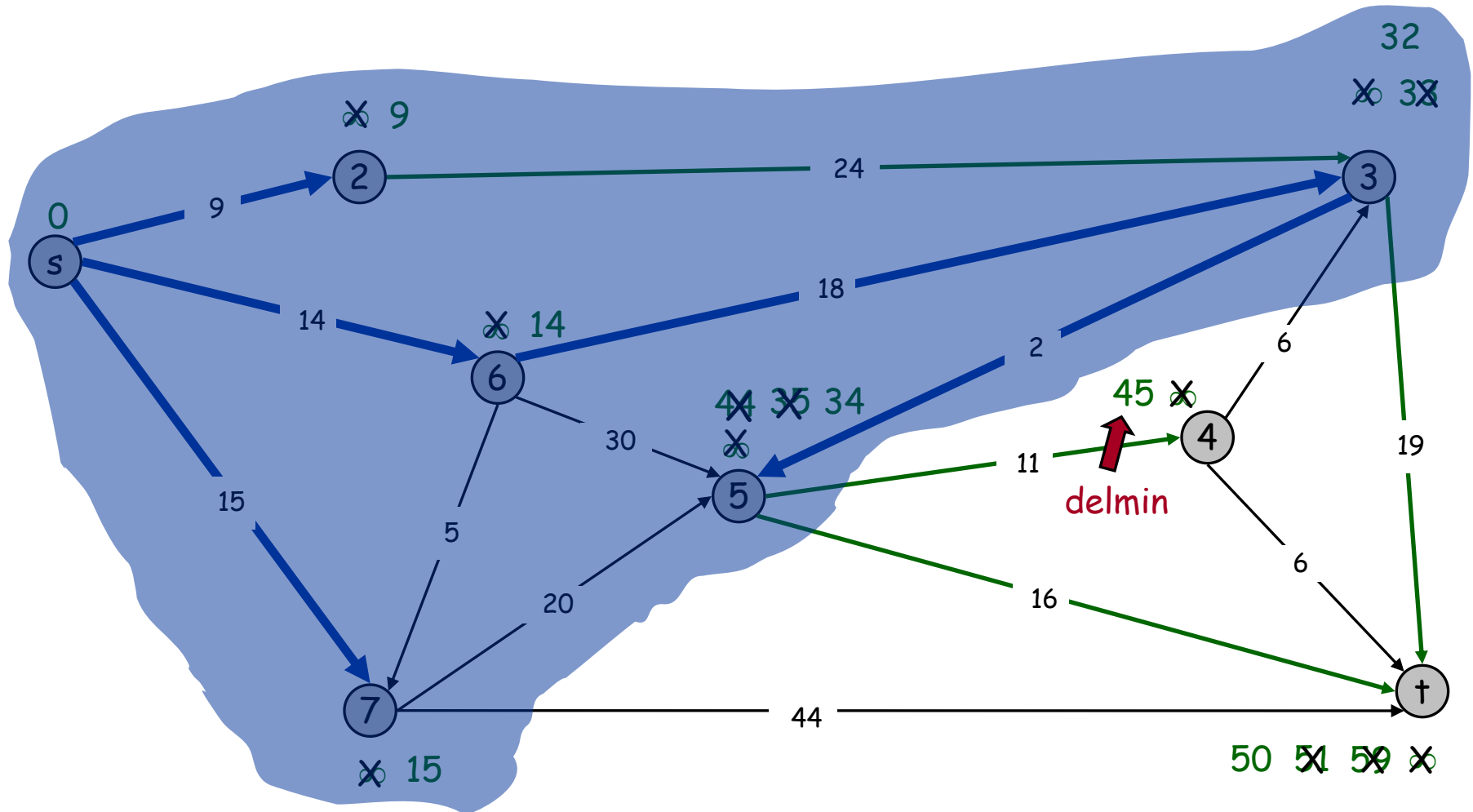
Dijkstra's Shortest Path Algorithm

$$S = \{s, 2, 3, 5, 6, 7\}$$
$$PQ = \{4, +\}$$


Dijkstra's Shortest Path Algorithm

$S = \{s, 2, 3, 5, 6, 7\}$

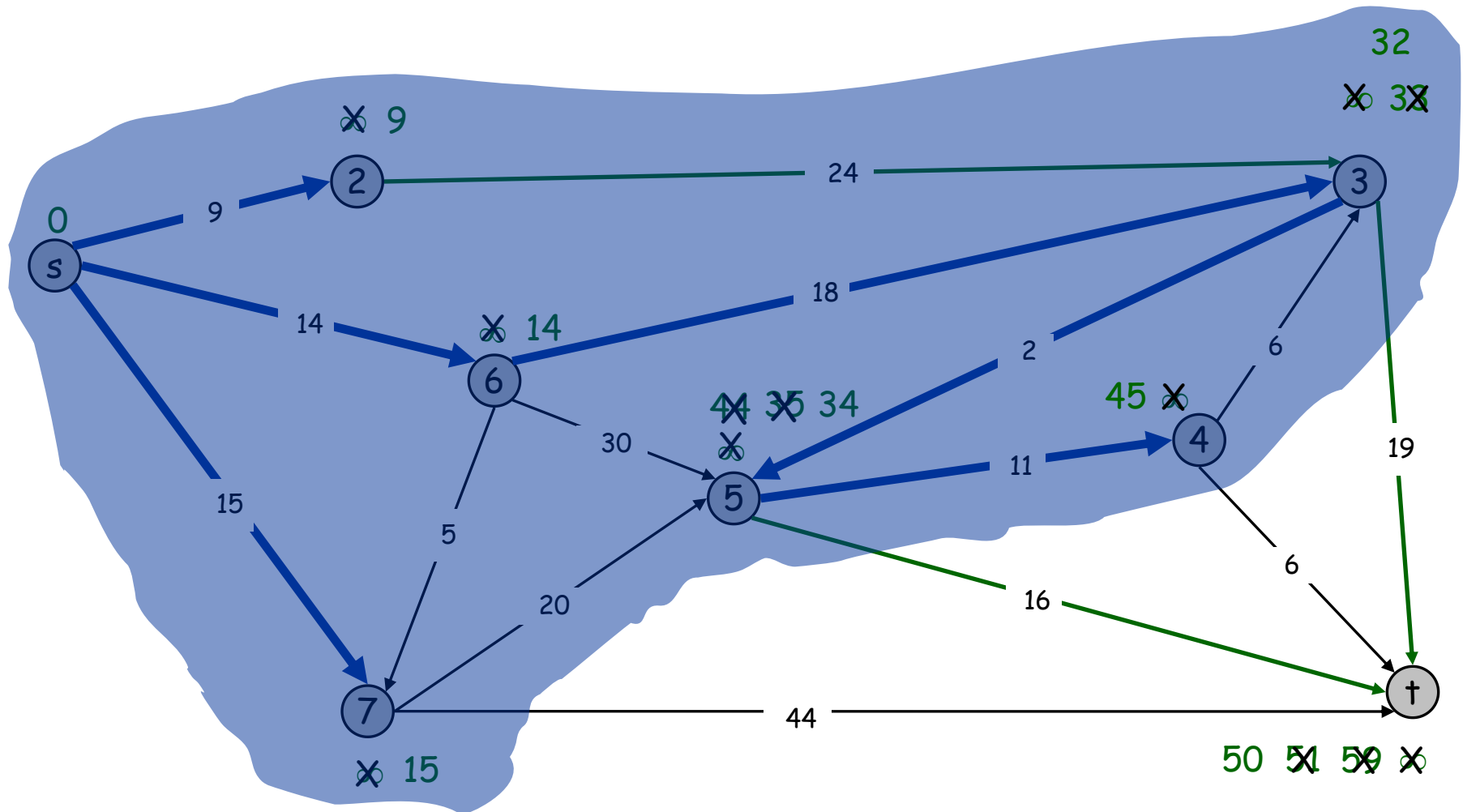
$PQ = \{4, \dagger\}$



Dijkstra's Shortest Path Algorithm

$S = \{s, 2, 3, 4, 5, 6, 7\}$

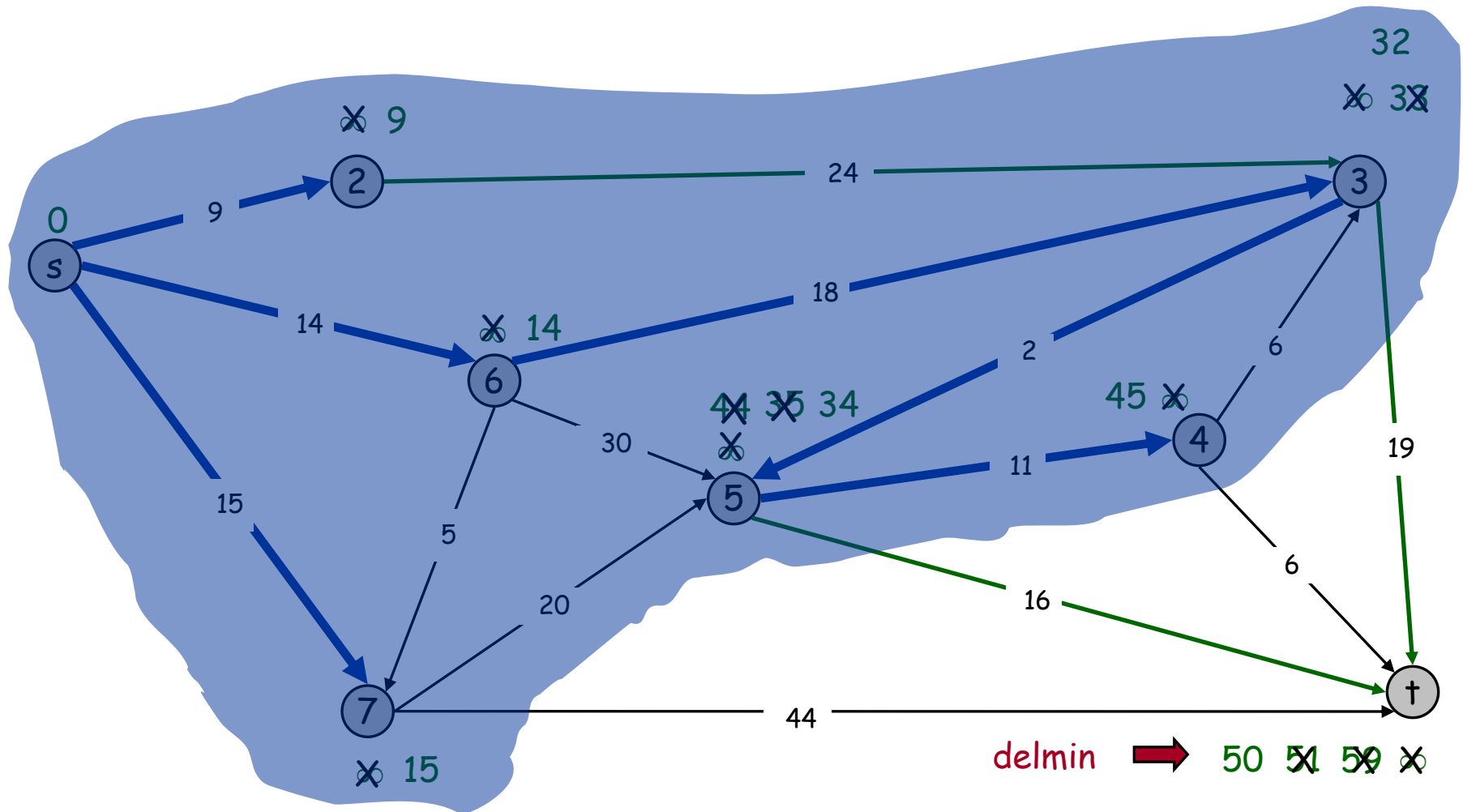
$PQ = \{t\}$



Dijkstra's Shortest Path Algorithm

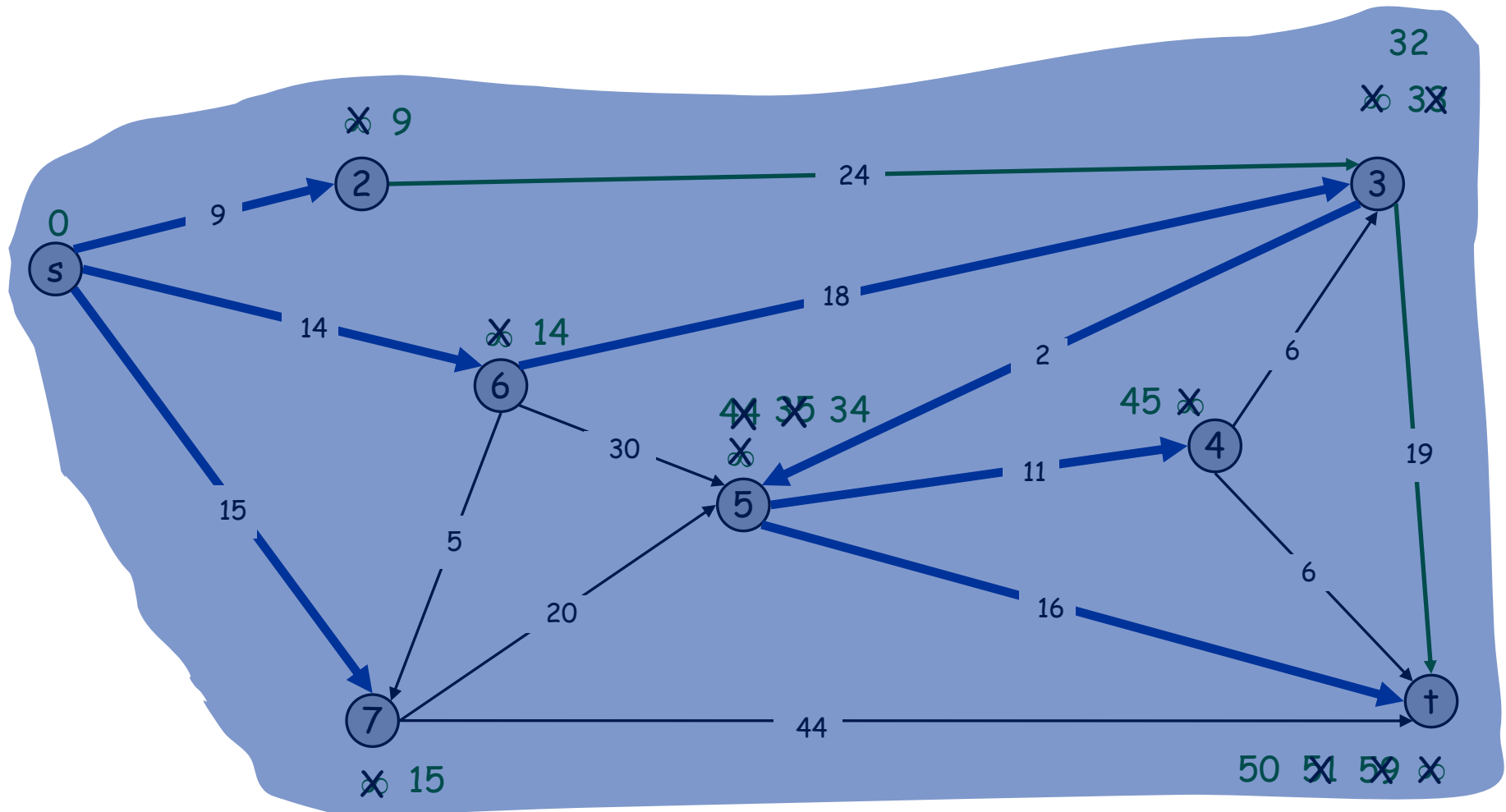
$S = \{s, 2, 3, 4, 5, 6, 7\}$

$PQ = \{t\}$



Dijkstra's Shortest Path Algorithm

$S = \{s, 2, 3, 4, 5, 6, 7, t\}$
 $PQ = \{\}$



Dijkstra's Shortest Path Algorithm

$S = \{s, 2, 3, 4, 5, 6, 7, t\}$
 $PQ = \{\}$

