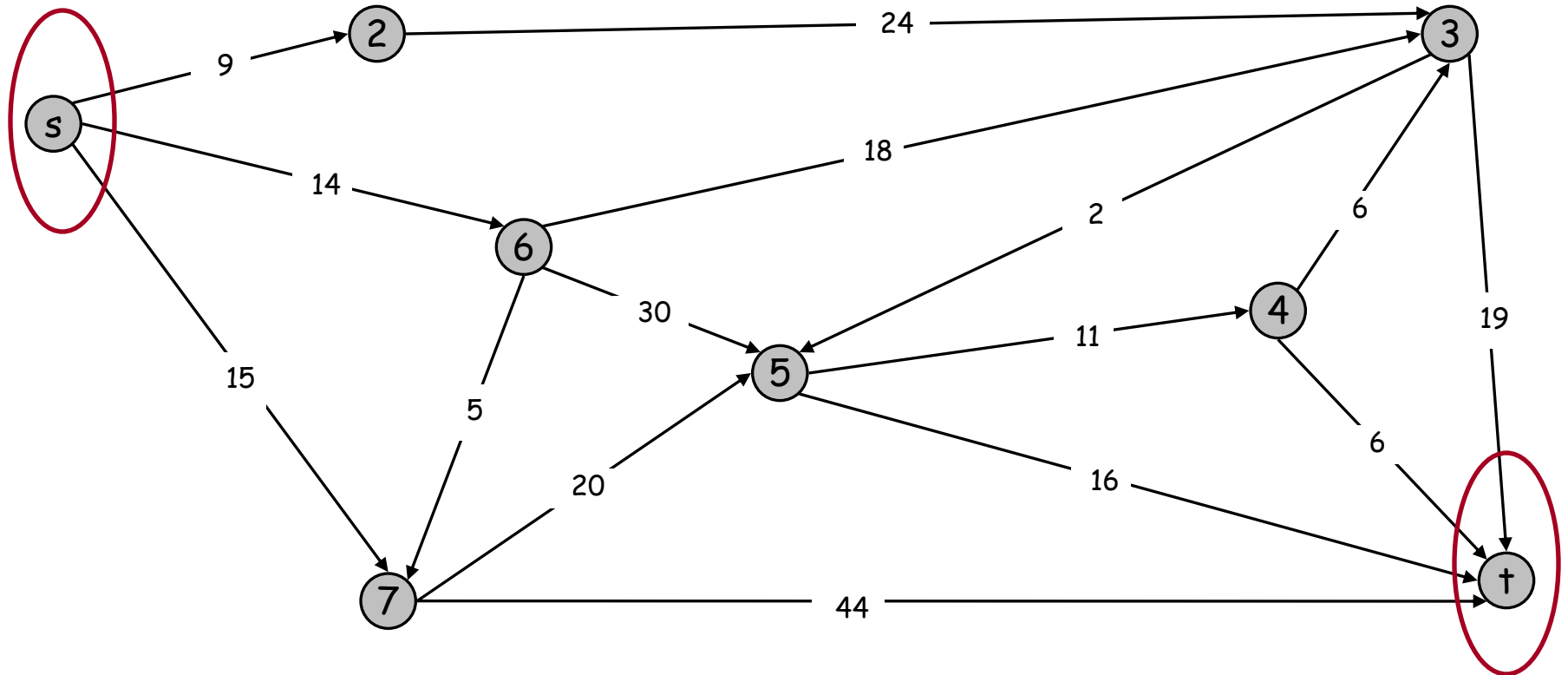


# Dijkstra's Shortest Path Algorithm

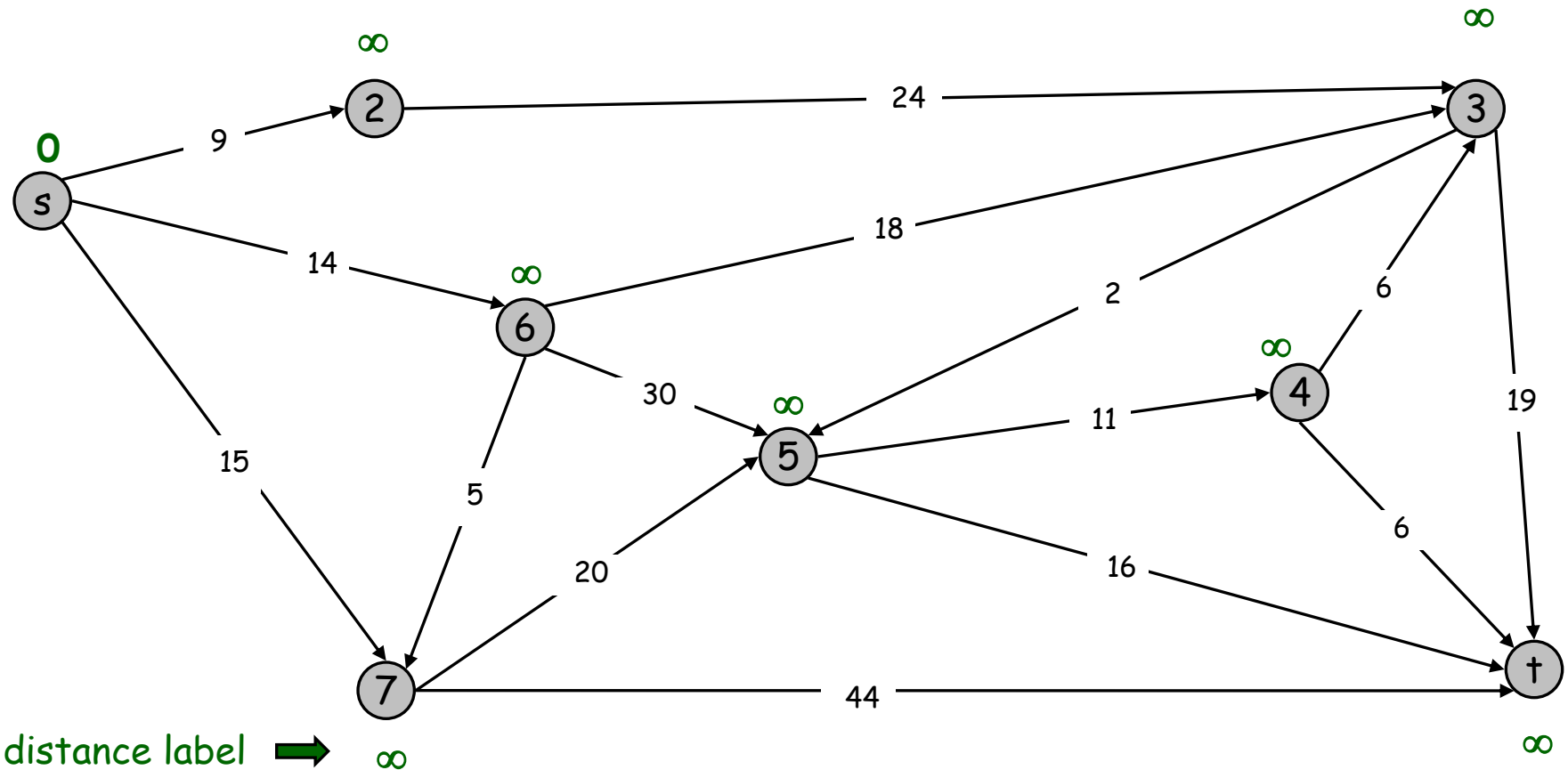
Find shortest path from s to t.



# Dijkstra's Shortest Path Algorithm

$S = \{ \}$

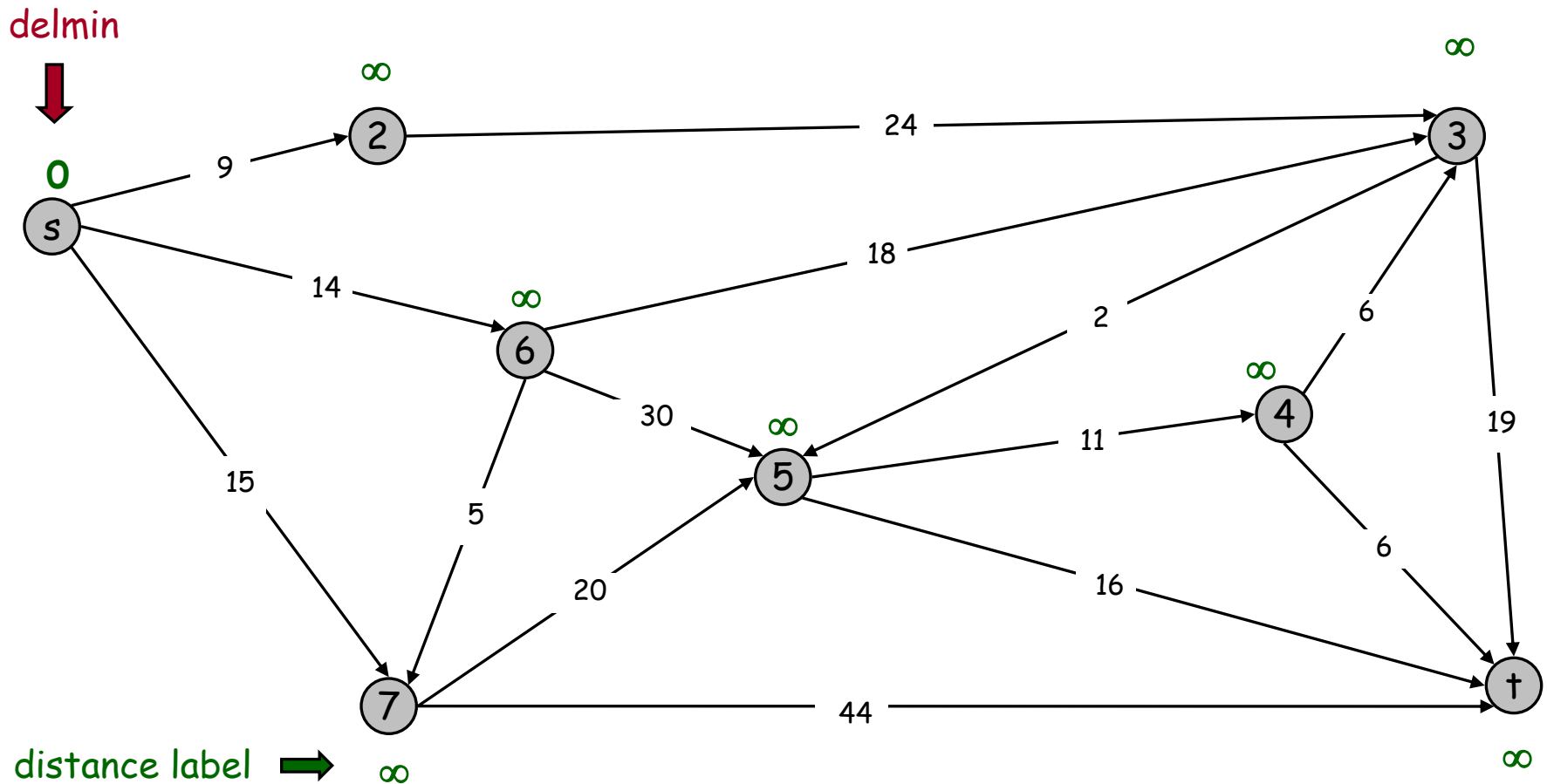
$PQ = \{ s, 2, 3, 4, 5, 6, 7, \dagger \}$



# Dijkstra's Shortest Path Algorithm

$S = \{ \}$

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



# Dijkstra's Shortest Path Algorithm

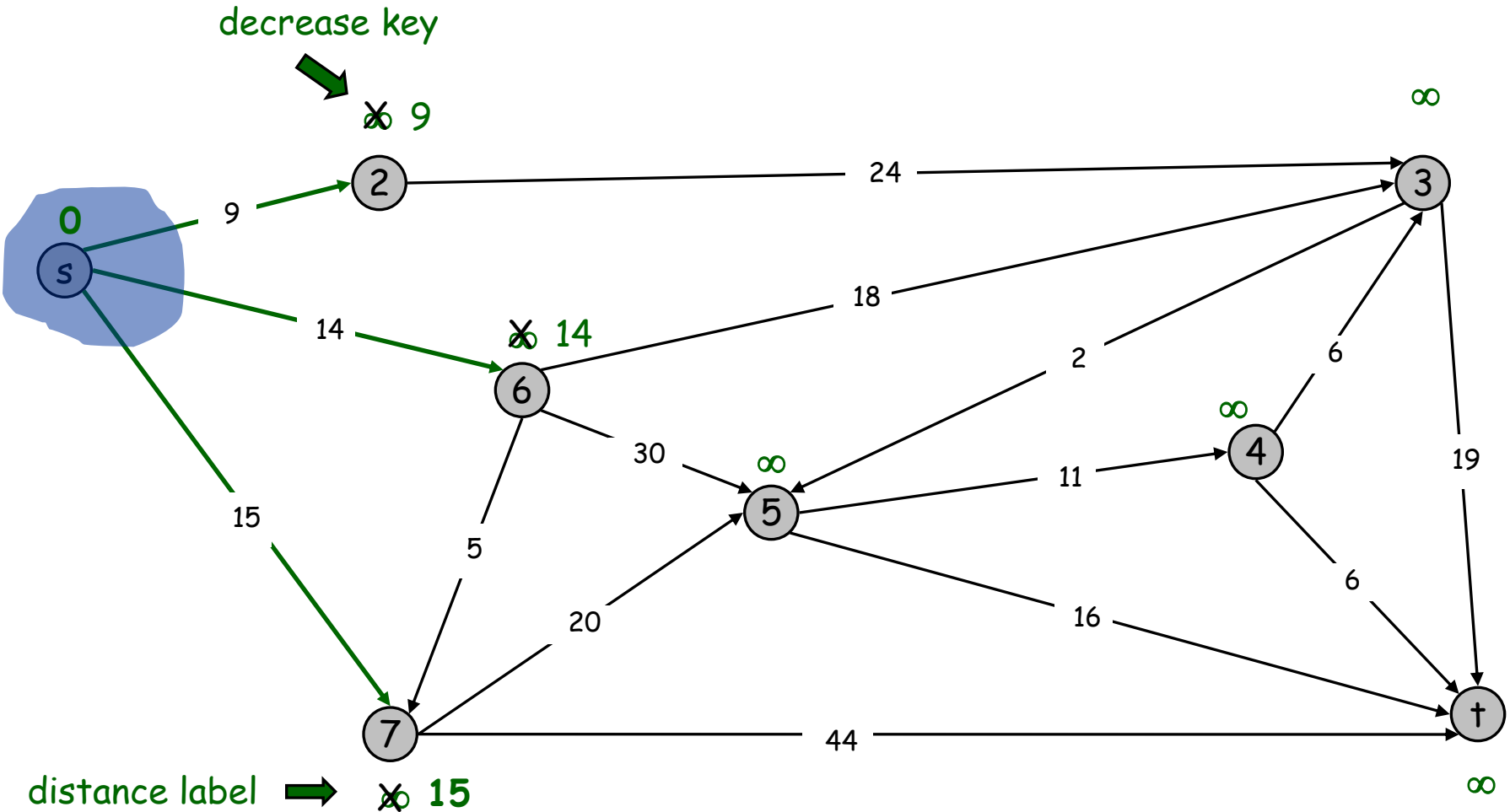
$S = \{s\}$

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

decrease key



~~9~~

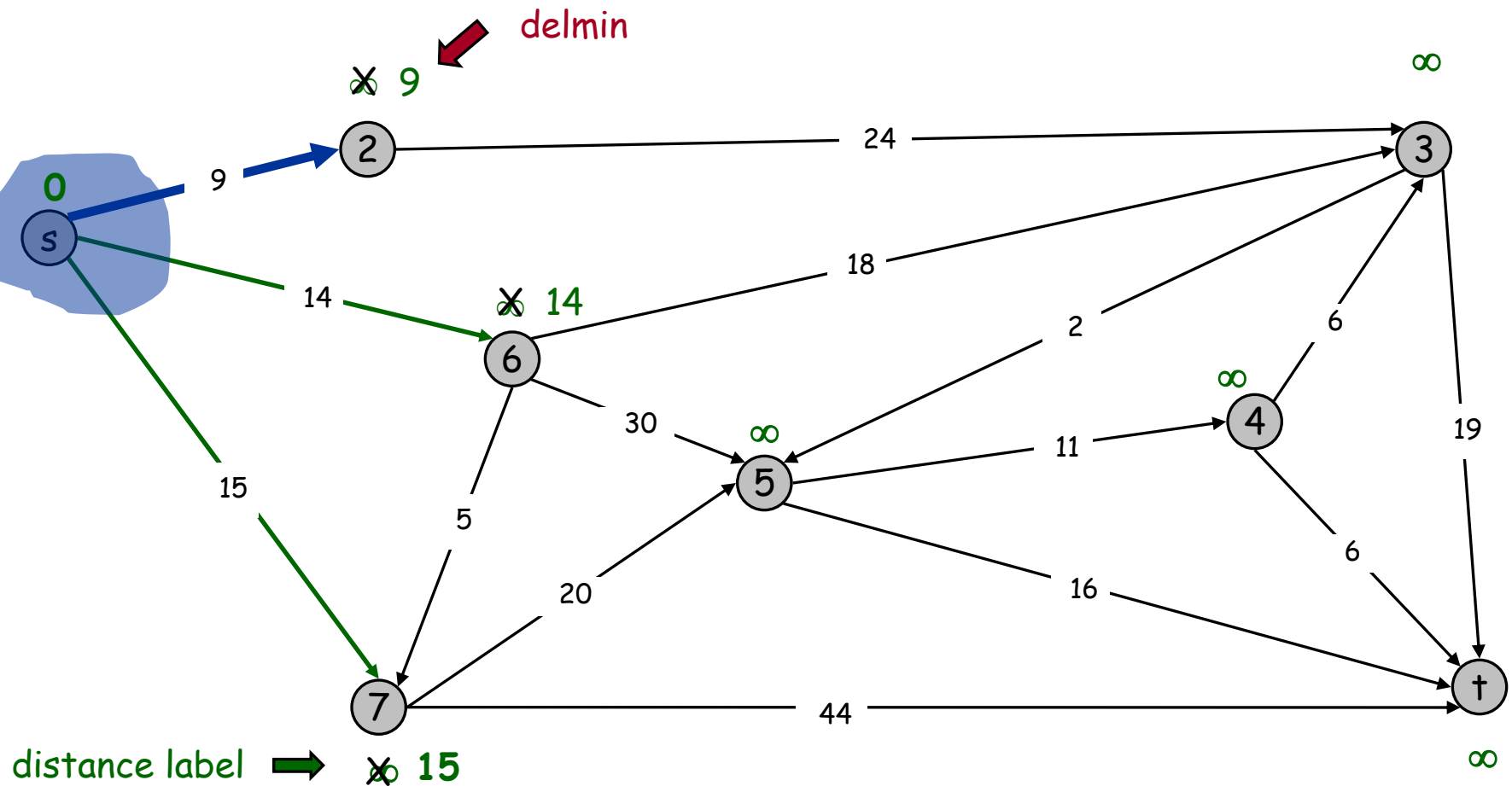


distance label  ~~15~~

# Dijkstra's Shortest Path Algorithm

$S = \{s\}$

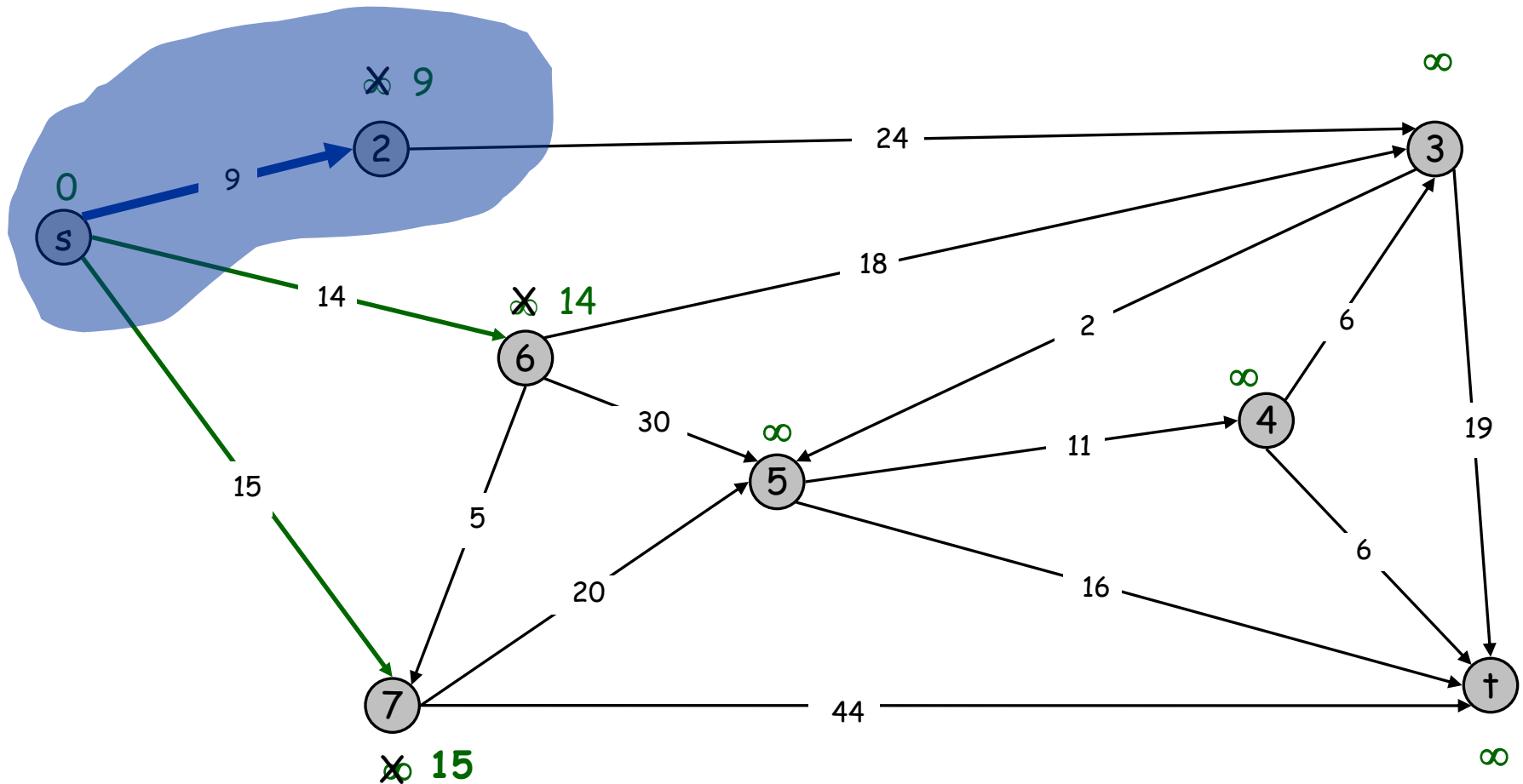
$PQ = \{2, 3, 4, 5, 6, 7, \dagger\}$



# Dijkstra's Shortest Path Algorithm

$S = \{s, 2\}$

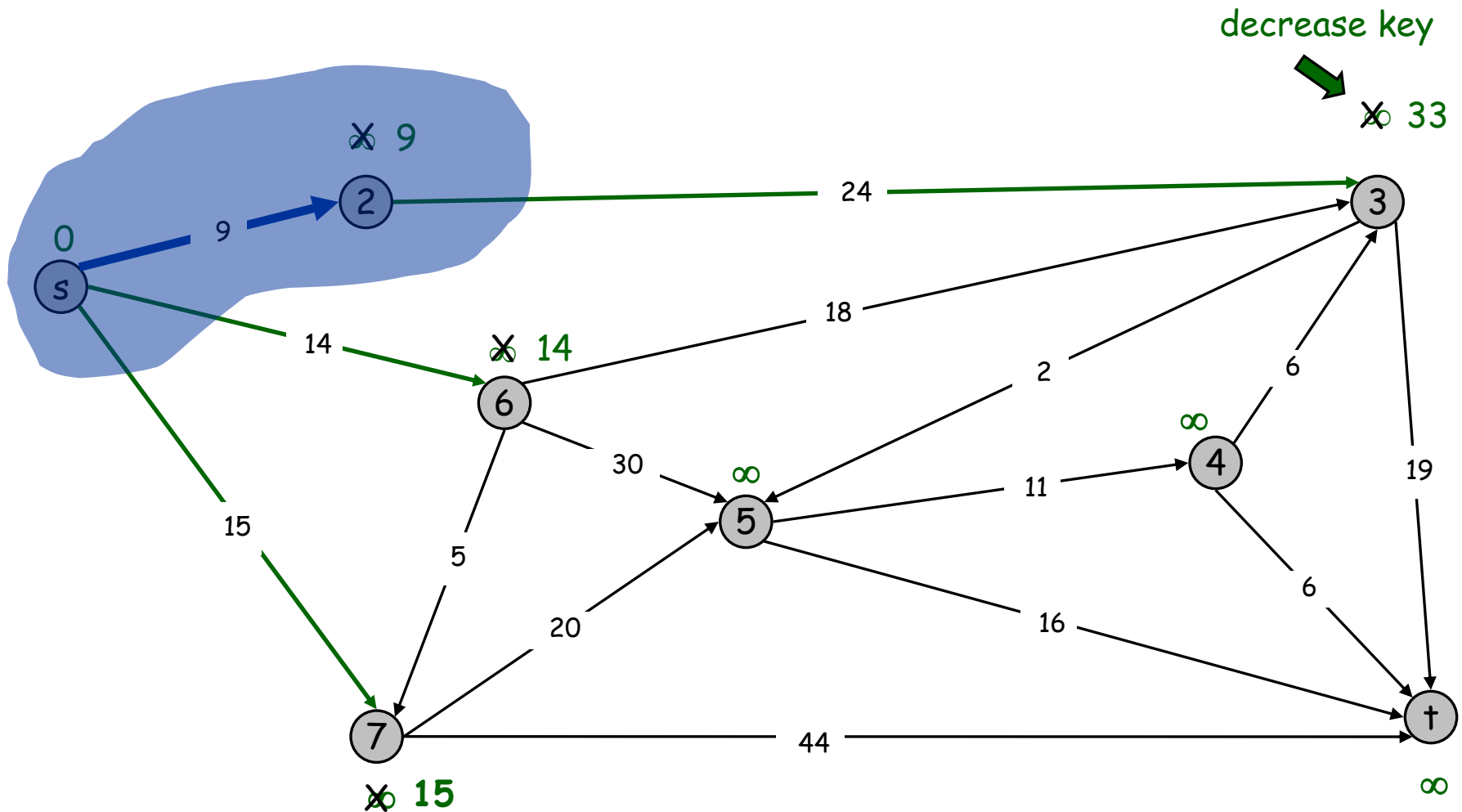
$PQ = \{3, 4, 5, 6, 7, \dagger\}$



# Dijkstra's Shortest Path Algorithm

$S = \{s, 2\}$

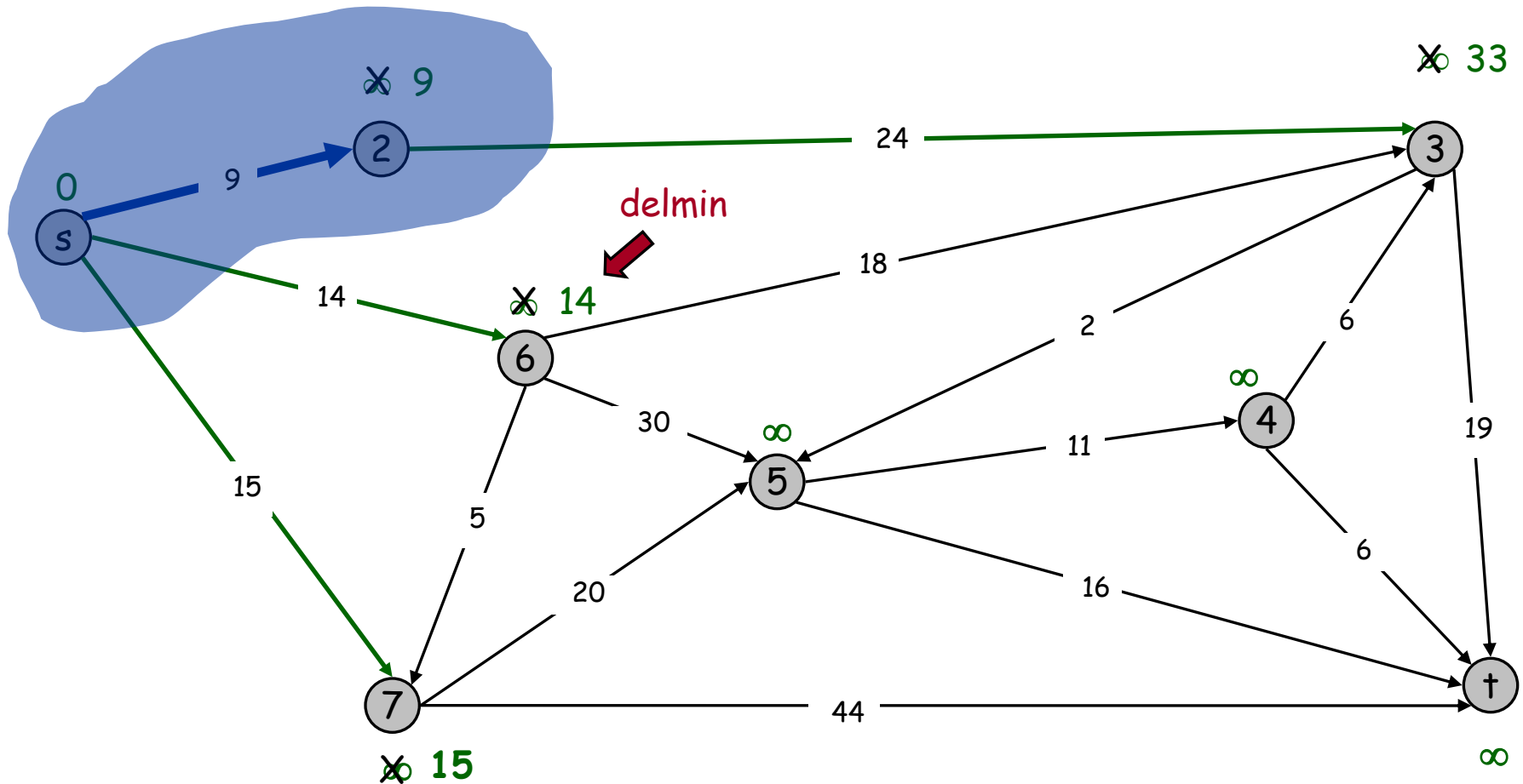
$PQ = \{3, 4, 5, 6, 7, \dagger\}$



# Dijkstra's Shortest Path Algorithm

$S = \{s, 2\}$

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

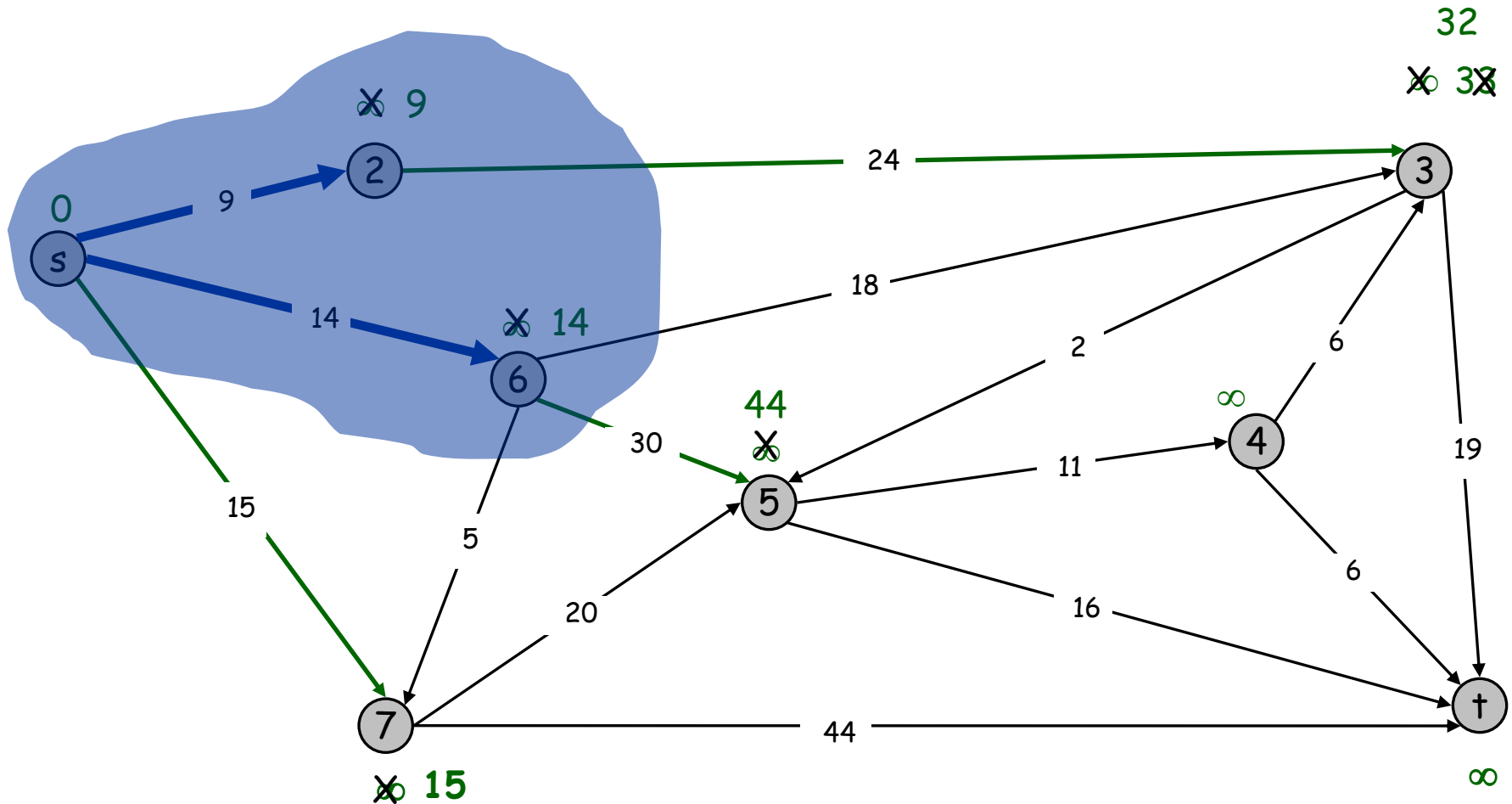




# Dijkstra's Shortest Path Algorithm

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

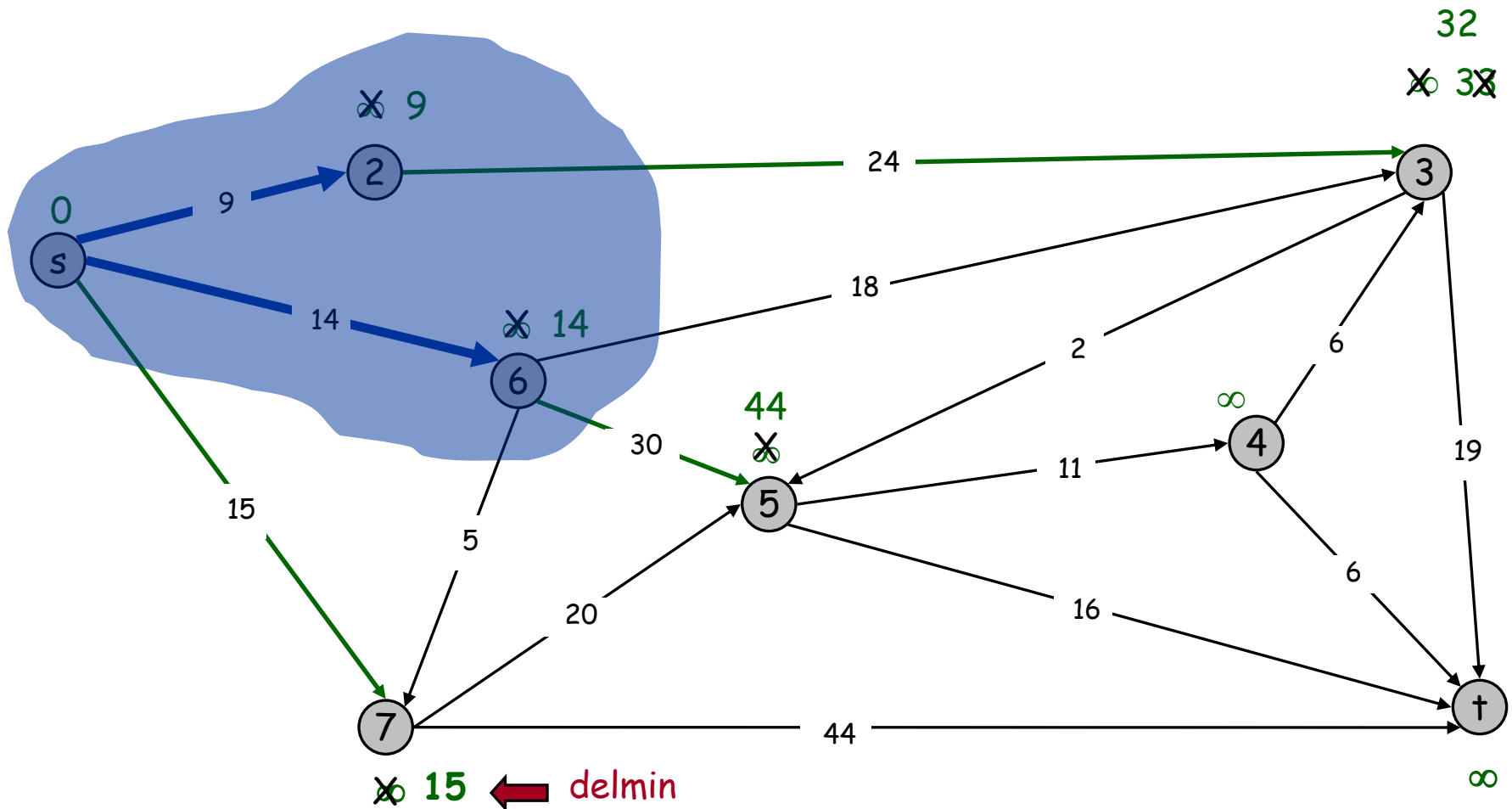
$PQ = \{3, 4, 5, 7, \dagger\}$



# Dijkstra's Shortest Path Algorithm

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

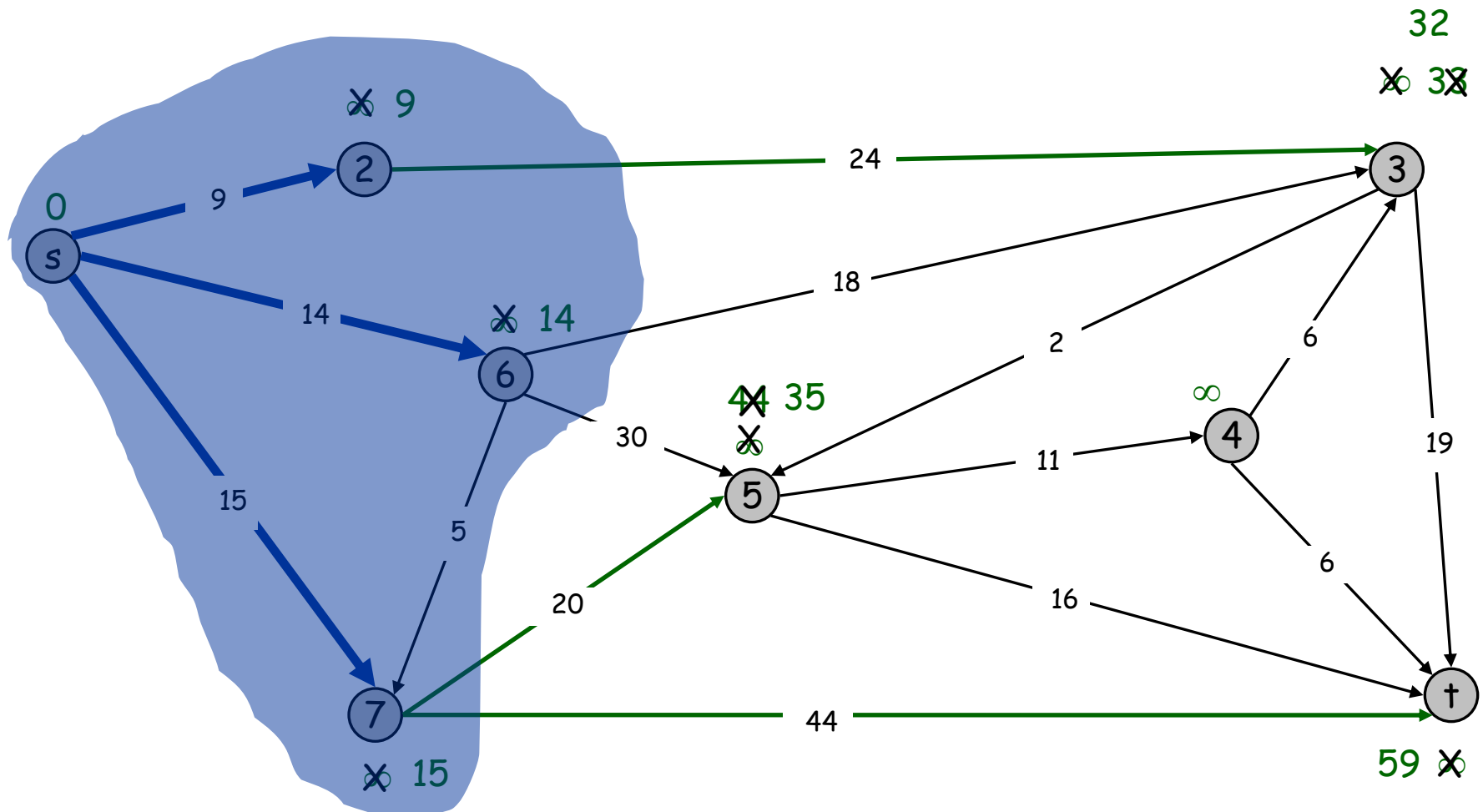
$PQ = \{3, 4, 5, 7, \dagger\}$



# Dijkstra's Shortest Path Algorithm

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

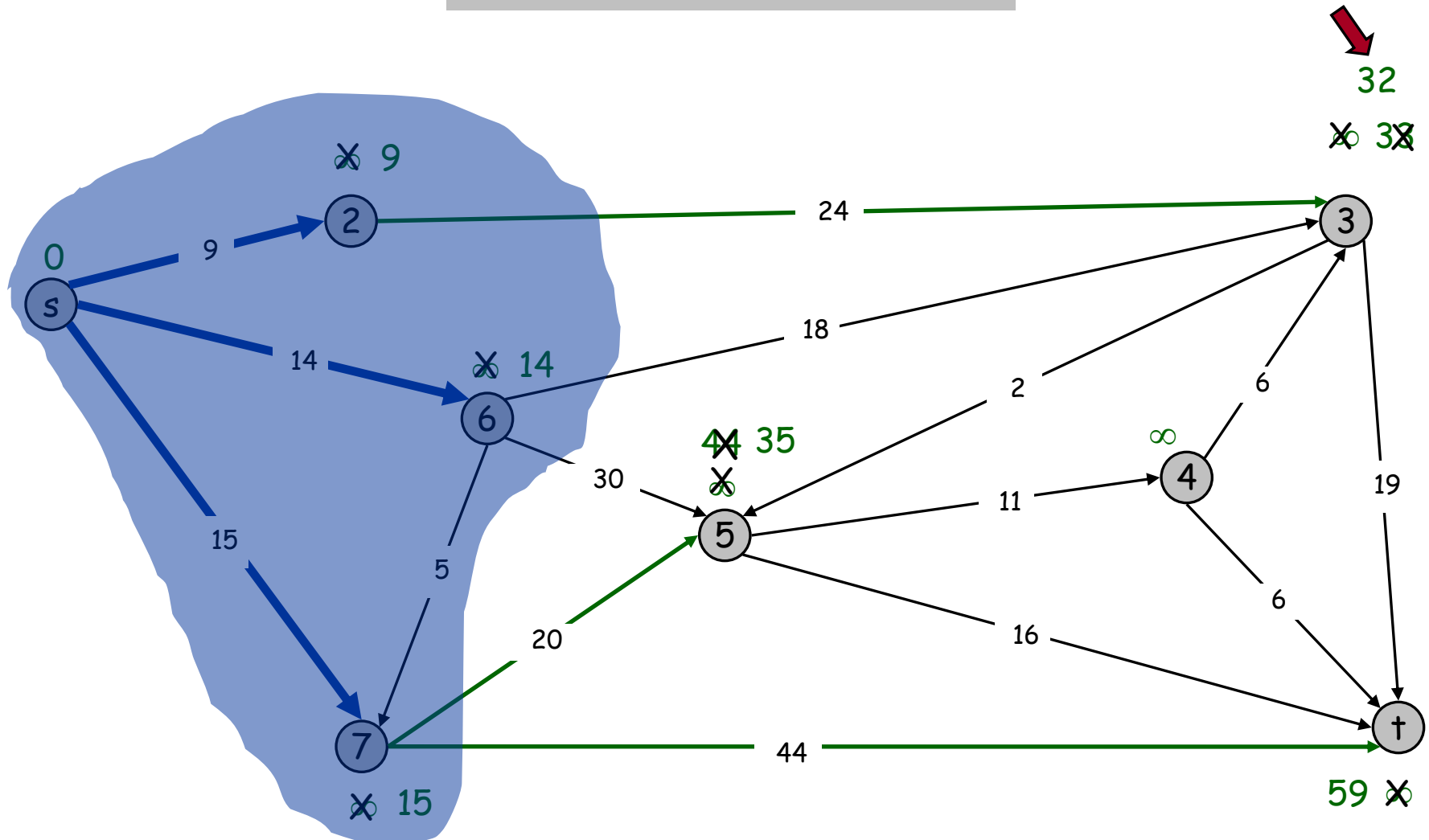
$PQ = \{3, 4, 5, \dagger\}$



# Dijkstra's Shortest Path Algorithm

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

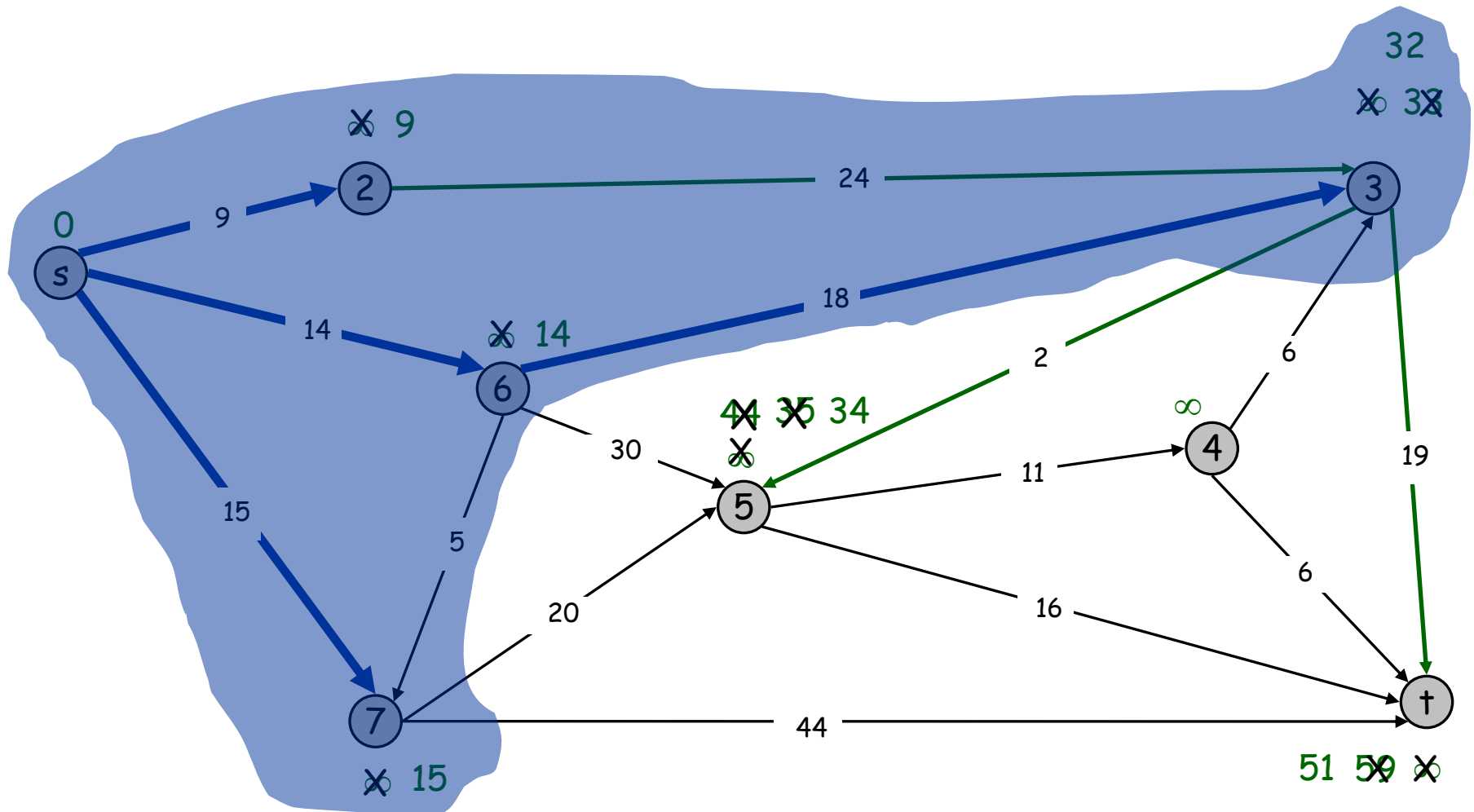
$PQ = \{3, 4, 5, \dagger\}$



# Dijkstra's Shortest Path Algorithm

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

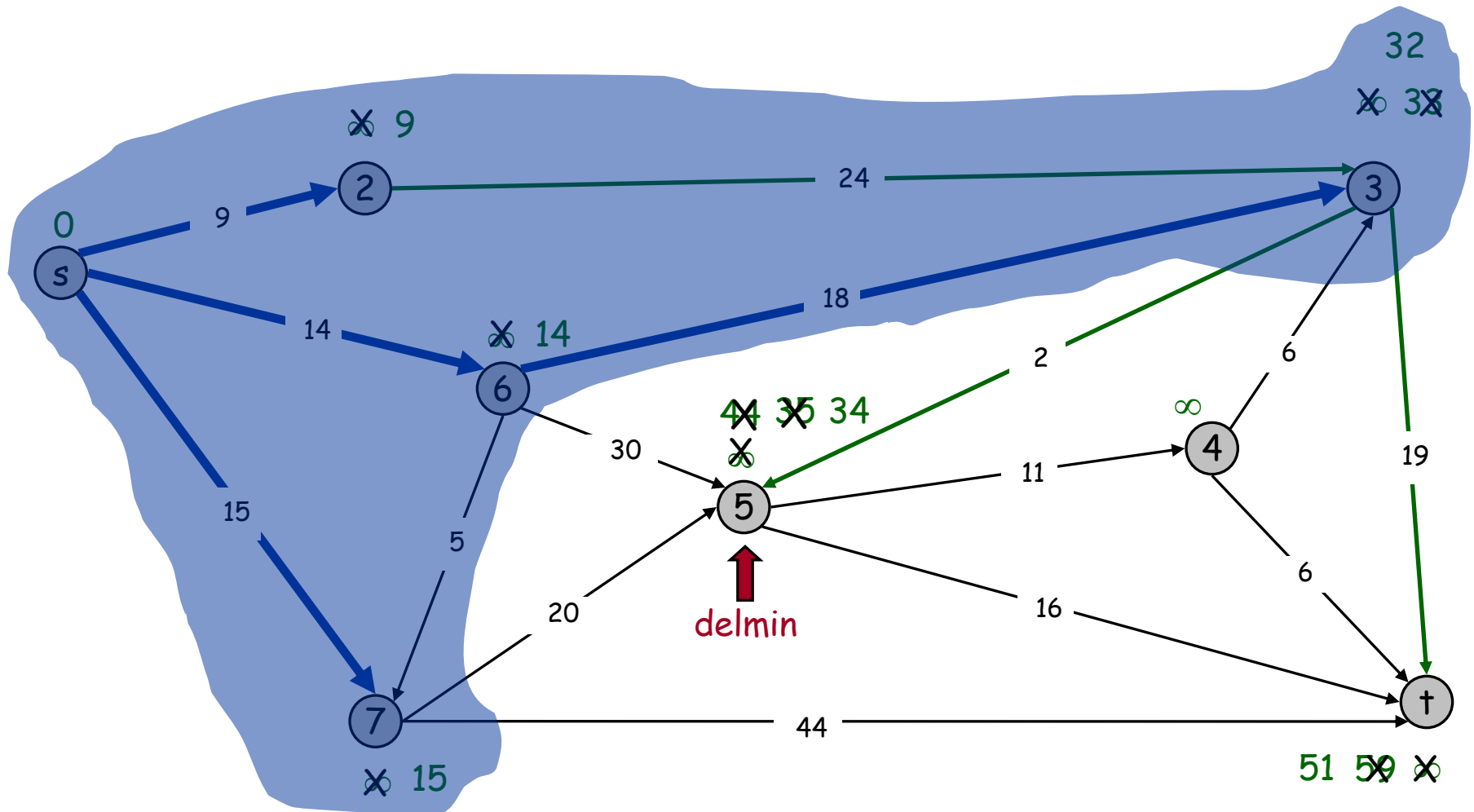
$PQ = \{4, 5, \dagger\}$



# Dijkstra's Shortest Path Algorithm

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

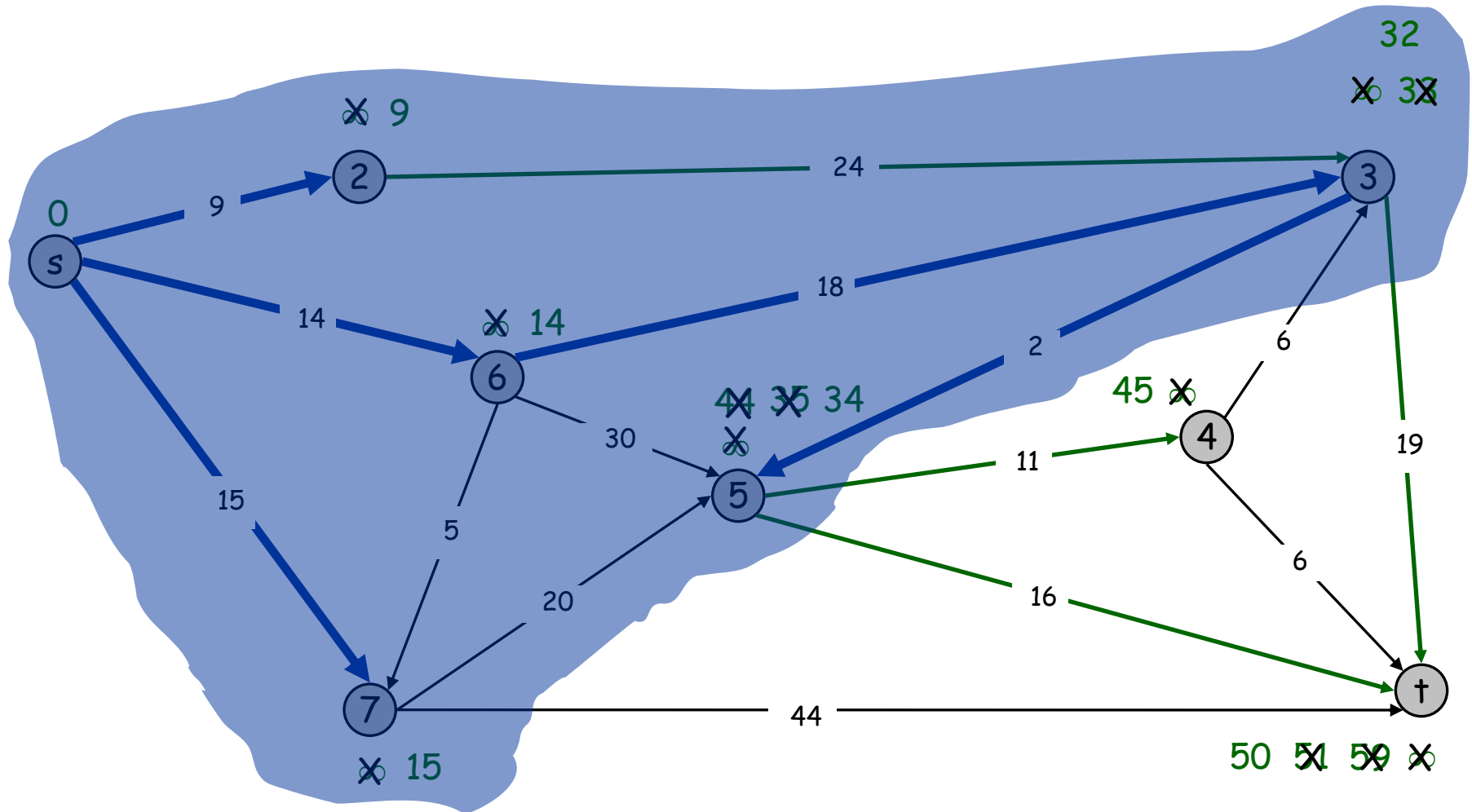
$PQ = \{4, 5, \dagger\}$



# Dijkstra's Shortest Path Algorithm

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

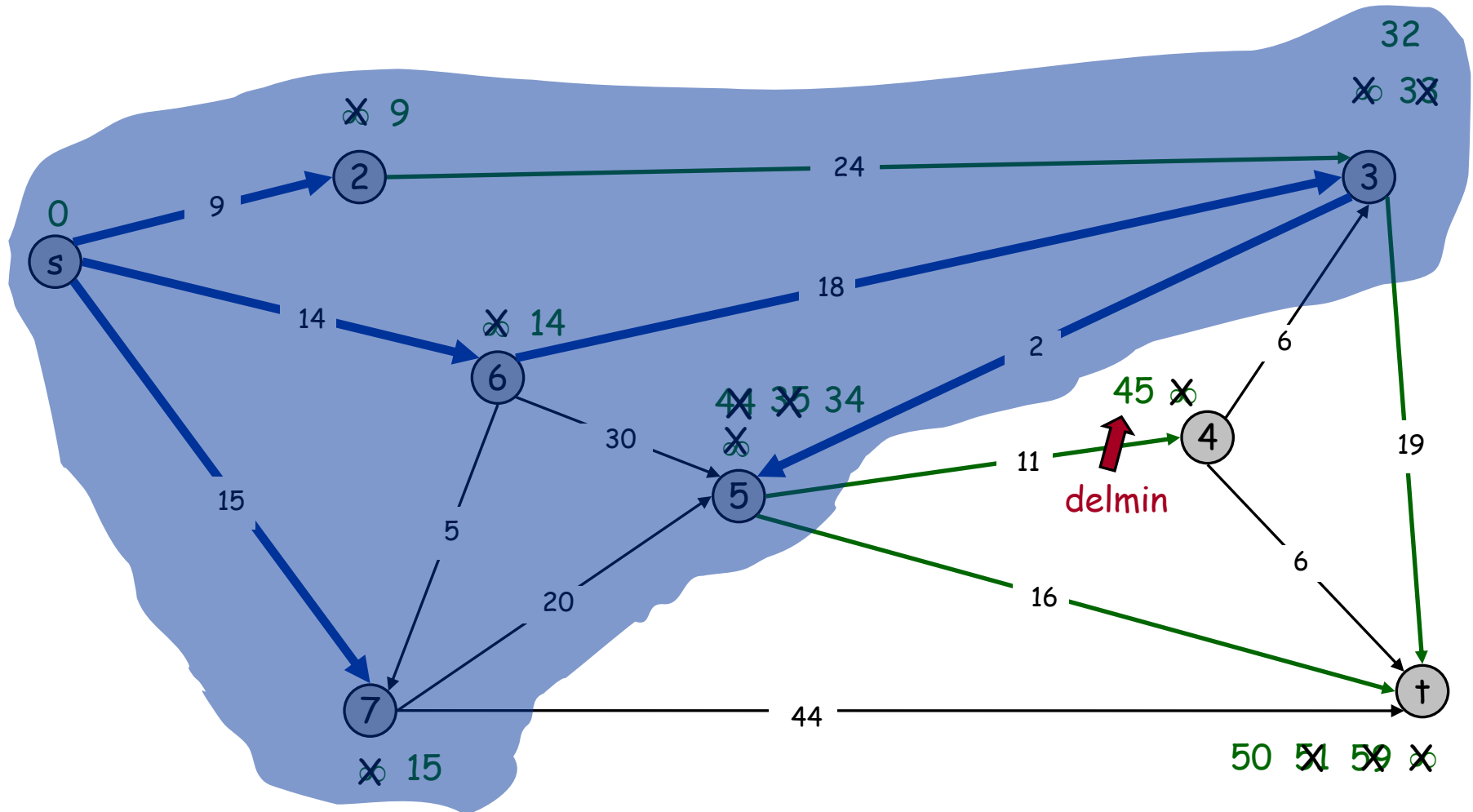
$PQ = \{4, \dagger\}$



# Dijkstra's Shortest Path Algorithm

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

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

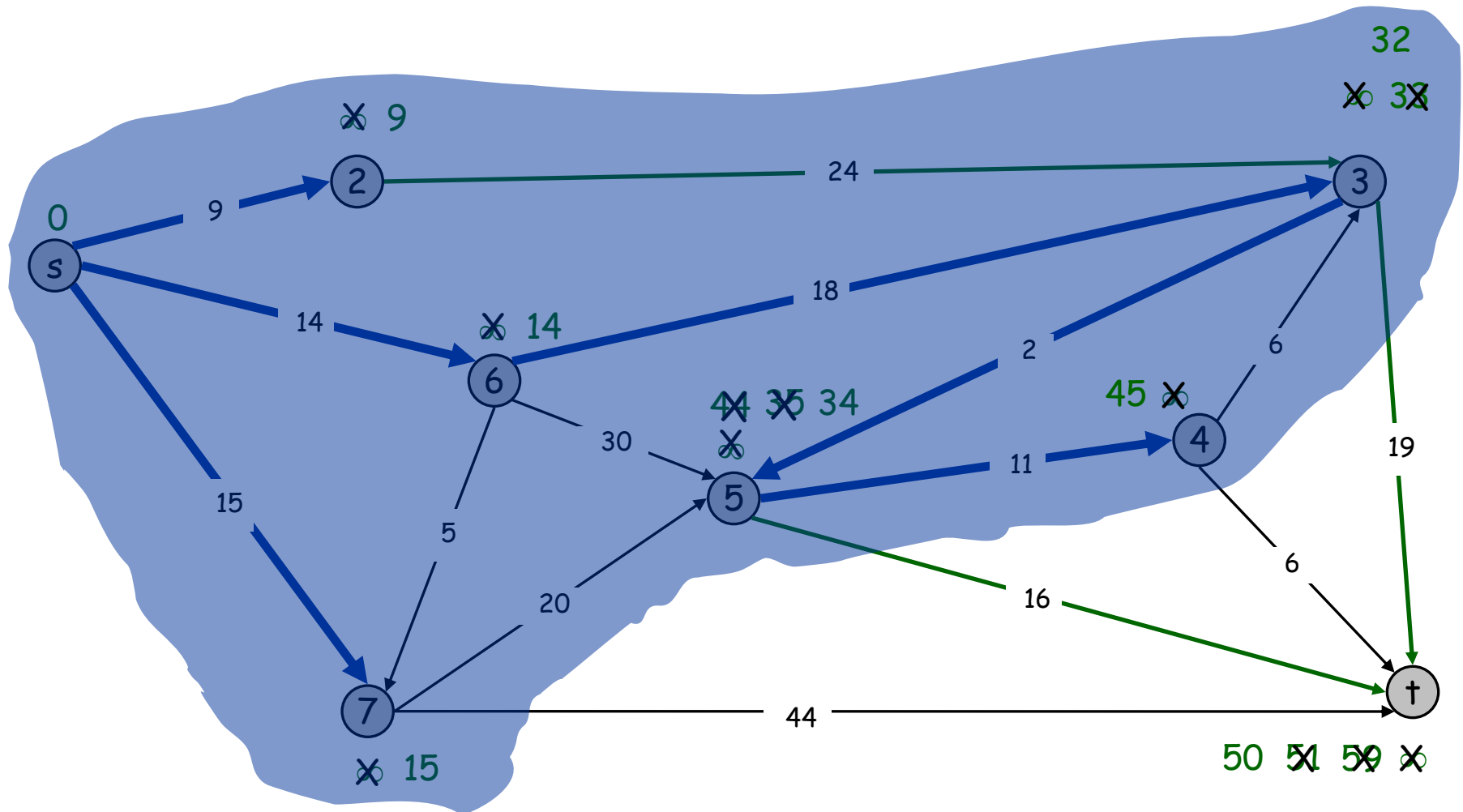




# Dijkstra's Shortest Path Algorithm

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

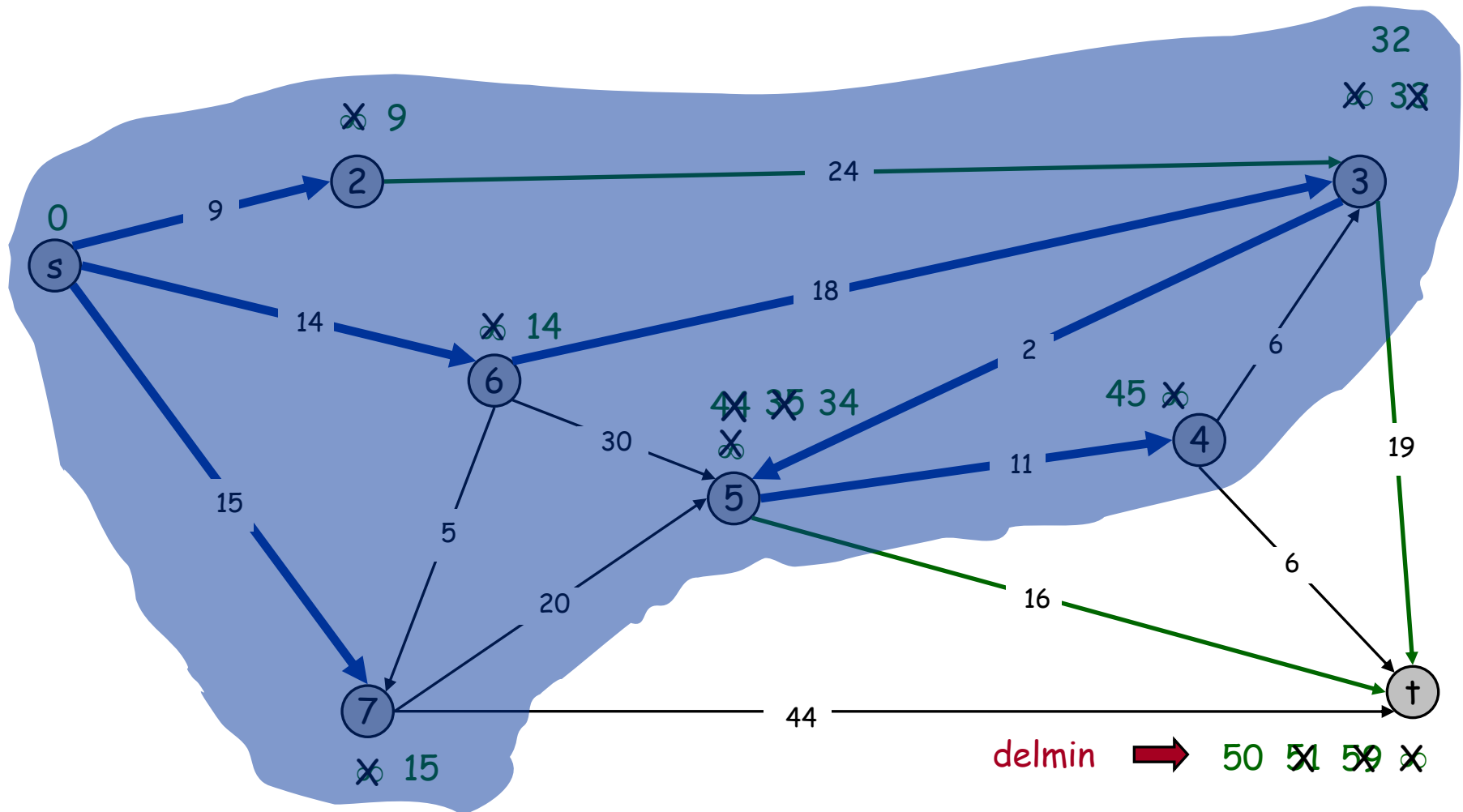
$PQ = \{t\}$



# Dijkstra's Shortest Path Algorithm

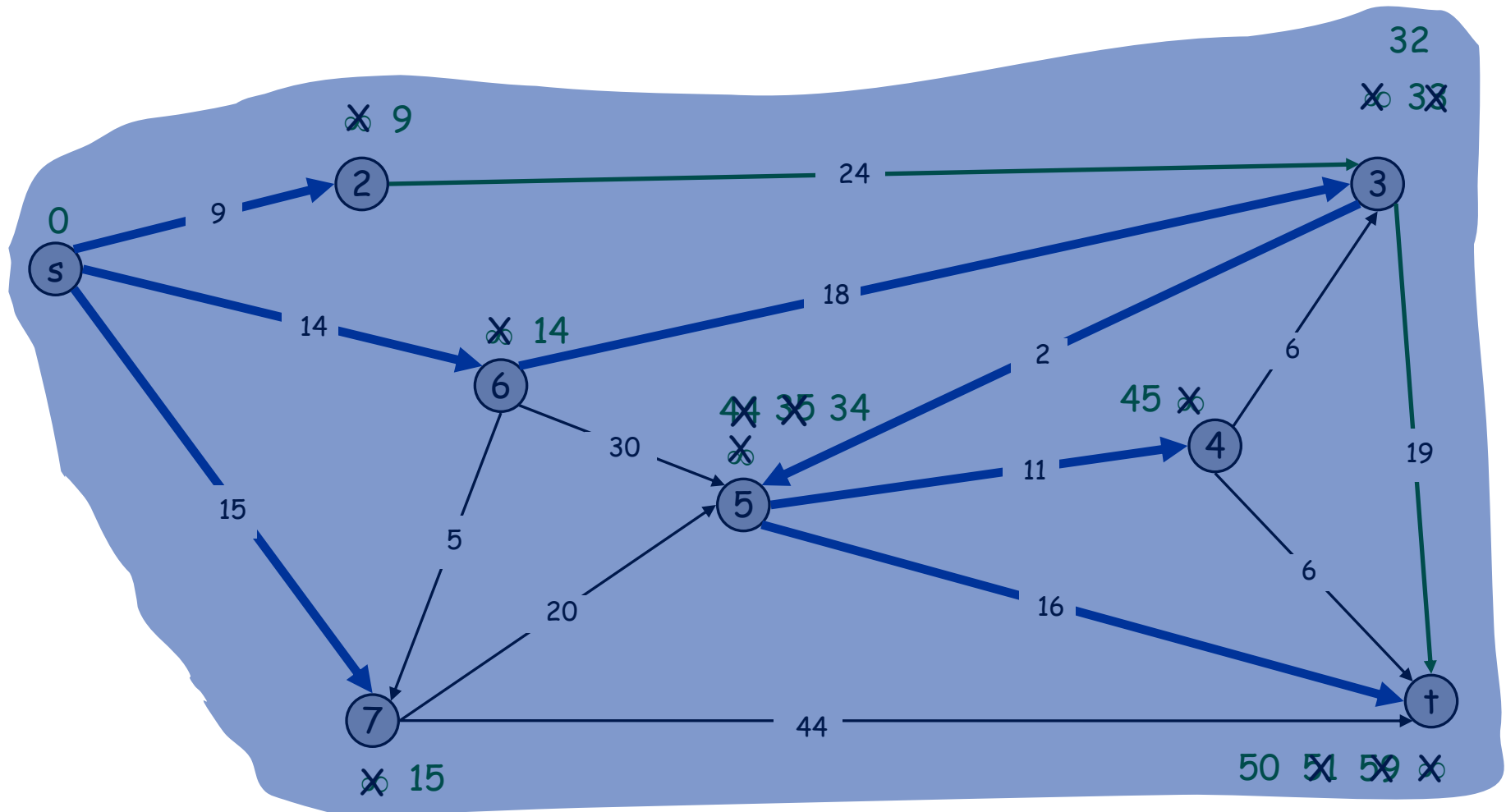
$S = \{s, 2, 3, 4, 5, 6, 7\}$

$PQ = \{t\}$



# Dijkstra's Shortest Path Algorithm

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



# Dijkstra's Shortest Path Algorithm

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

