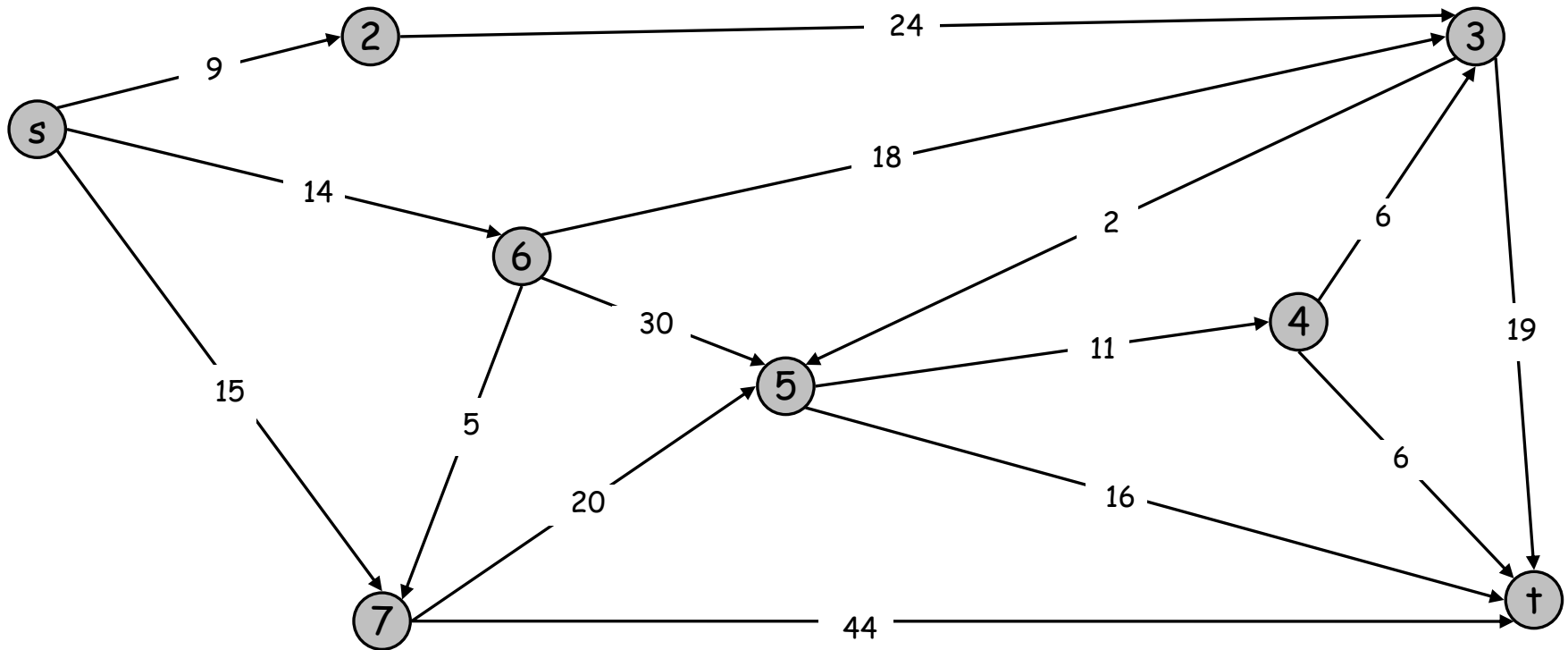


# Dijkstra's Shortest Path Algorithm

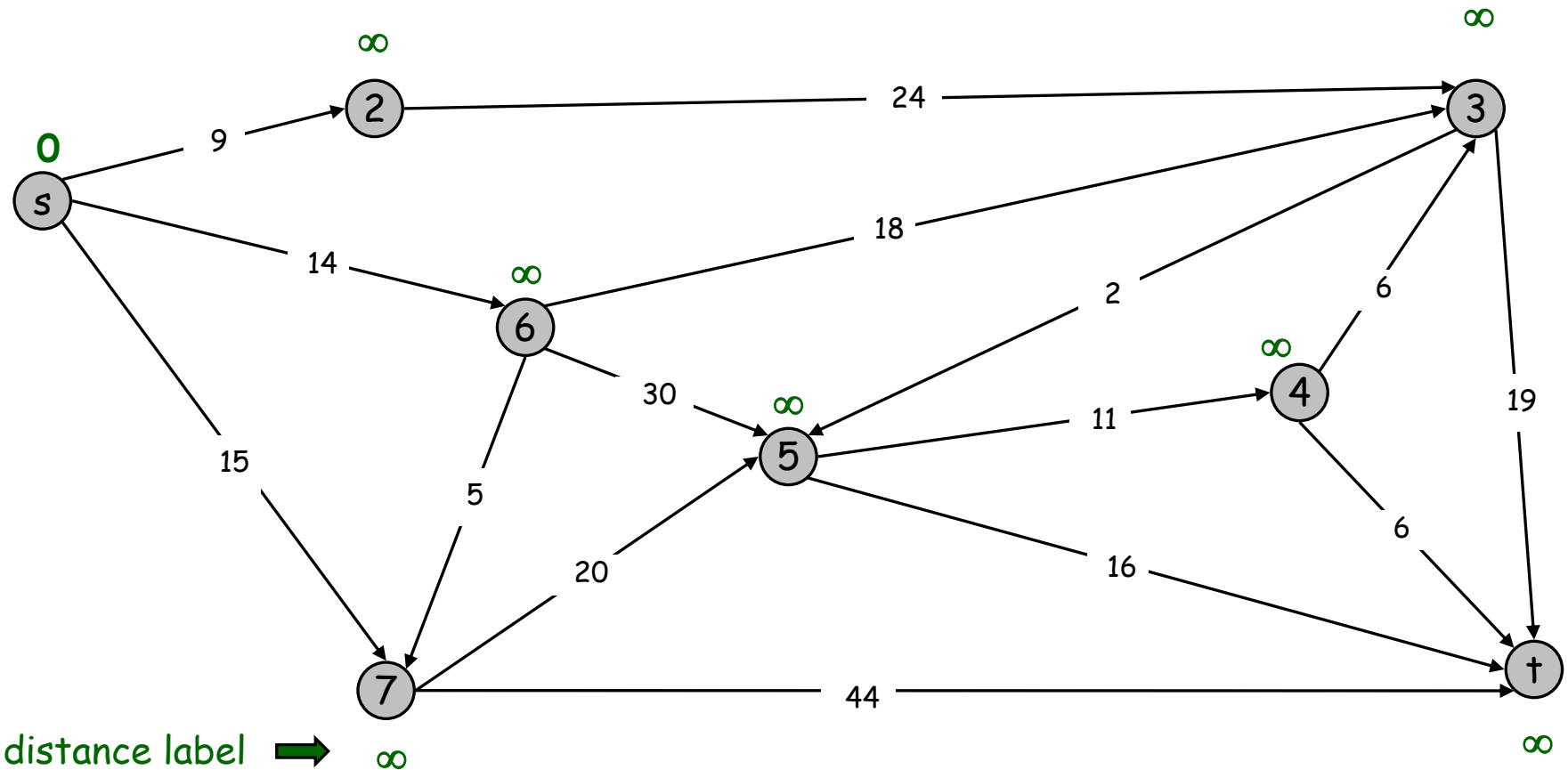
Find shortest path from s to t.



# Dijkstra's Shortest Path Algorithm

$S = \{ \}$

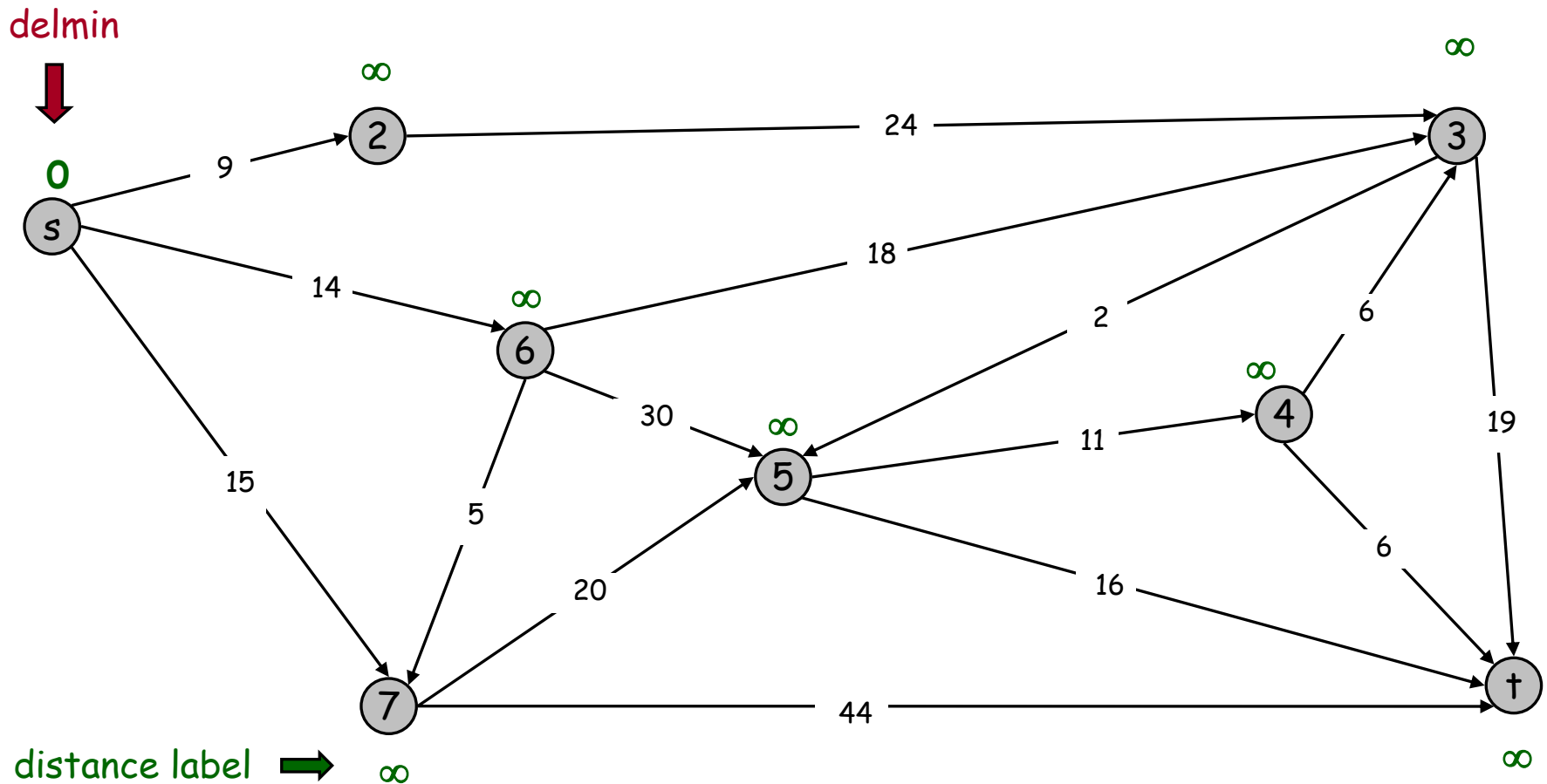
$Q = \{ s, 2, 3, 4, 5, 6, 7, t \}$



# Dijkstra's Shortest Path Algorithm

$S = \{ \}$

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



# Dijkstra's Shortest Path Algorithm

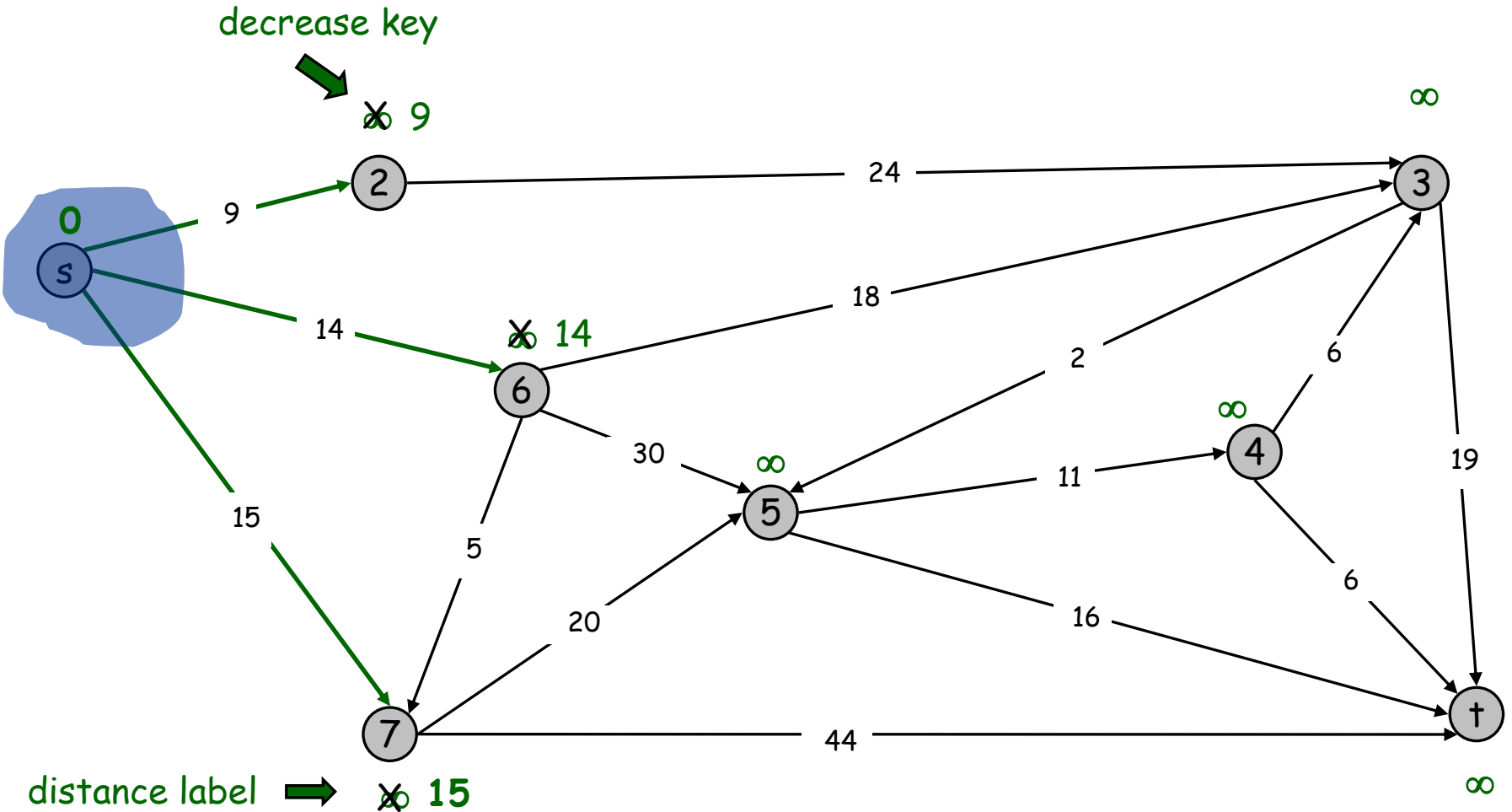
$S = \{s\}$

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

decrease key



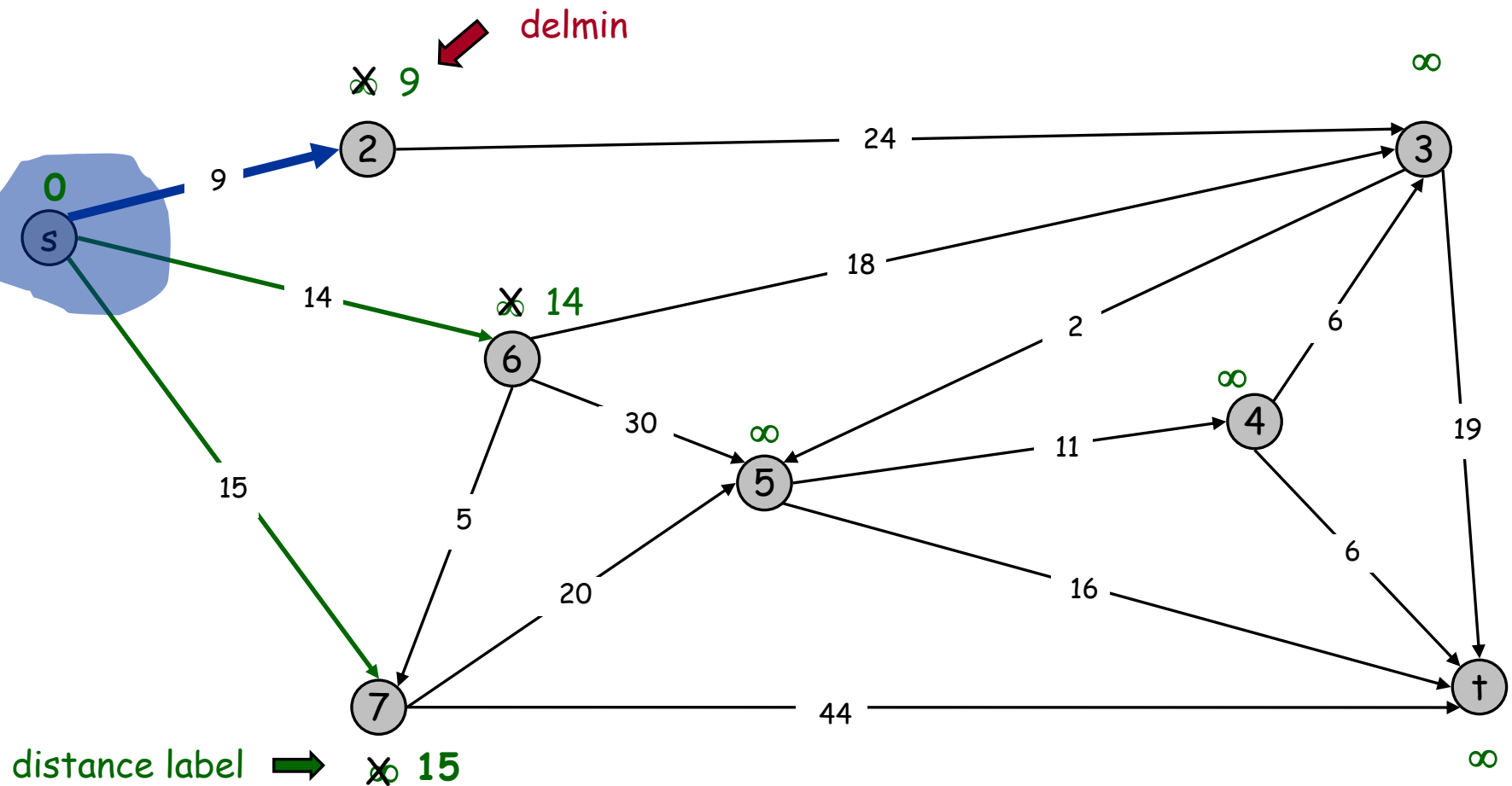
~~9~~



# Dijkstra's Shortest Path Algorithm

$S = \{s\}$

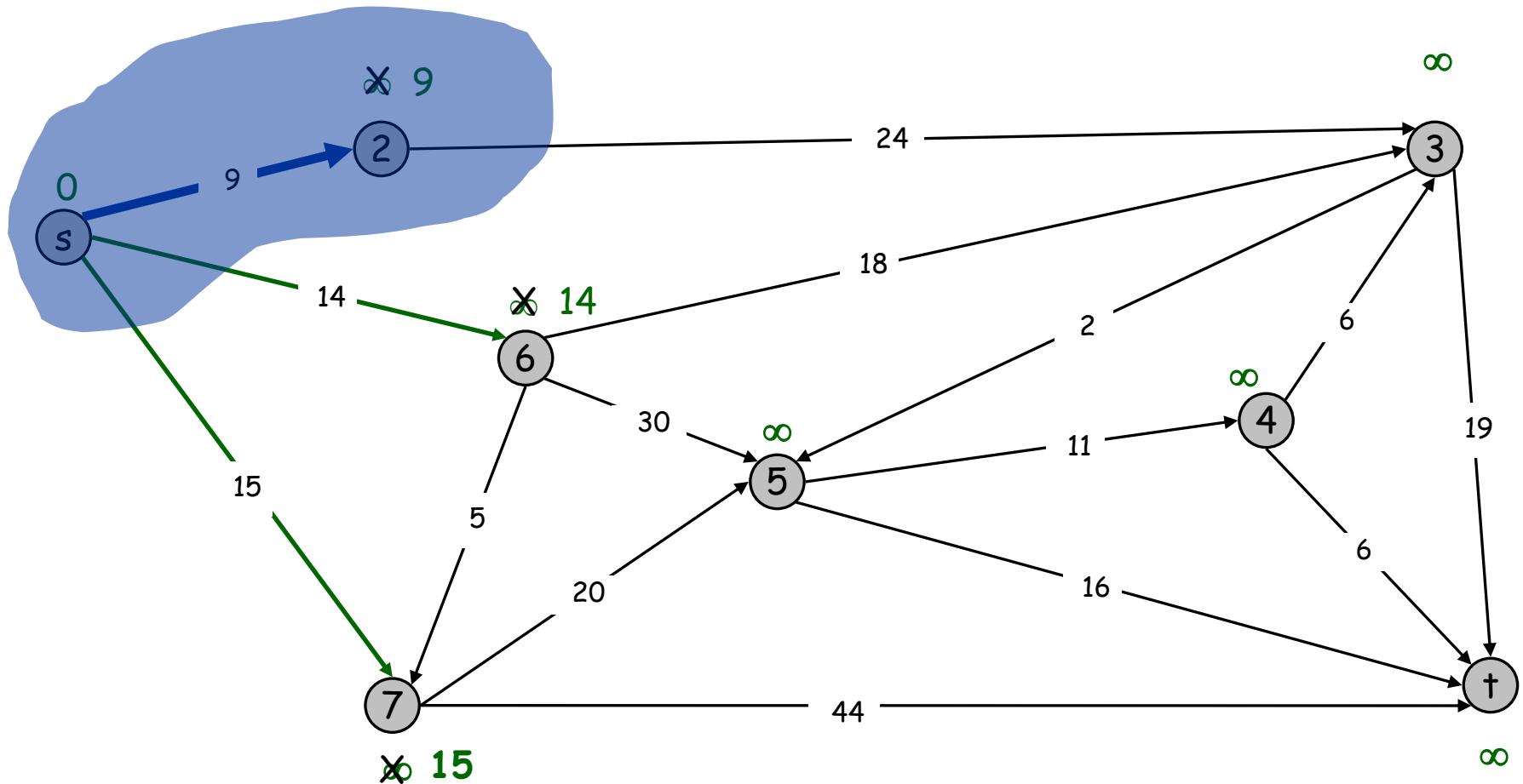
$Q = \{2, 3, 4, 5, 6, 7, \dagger\}$



# Dijkstra's Shortest Path Algorithm

$S = \{s, 2\}$

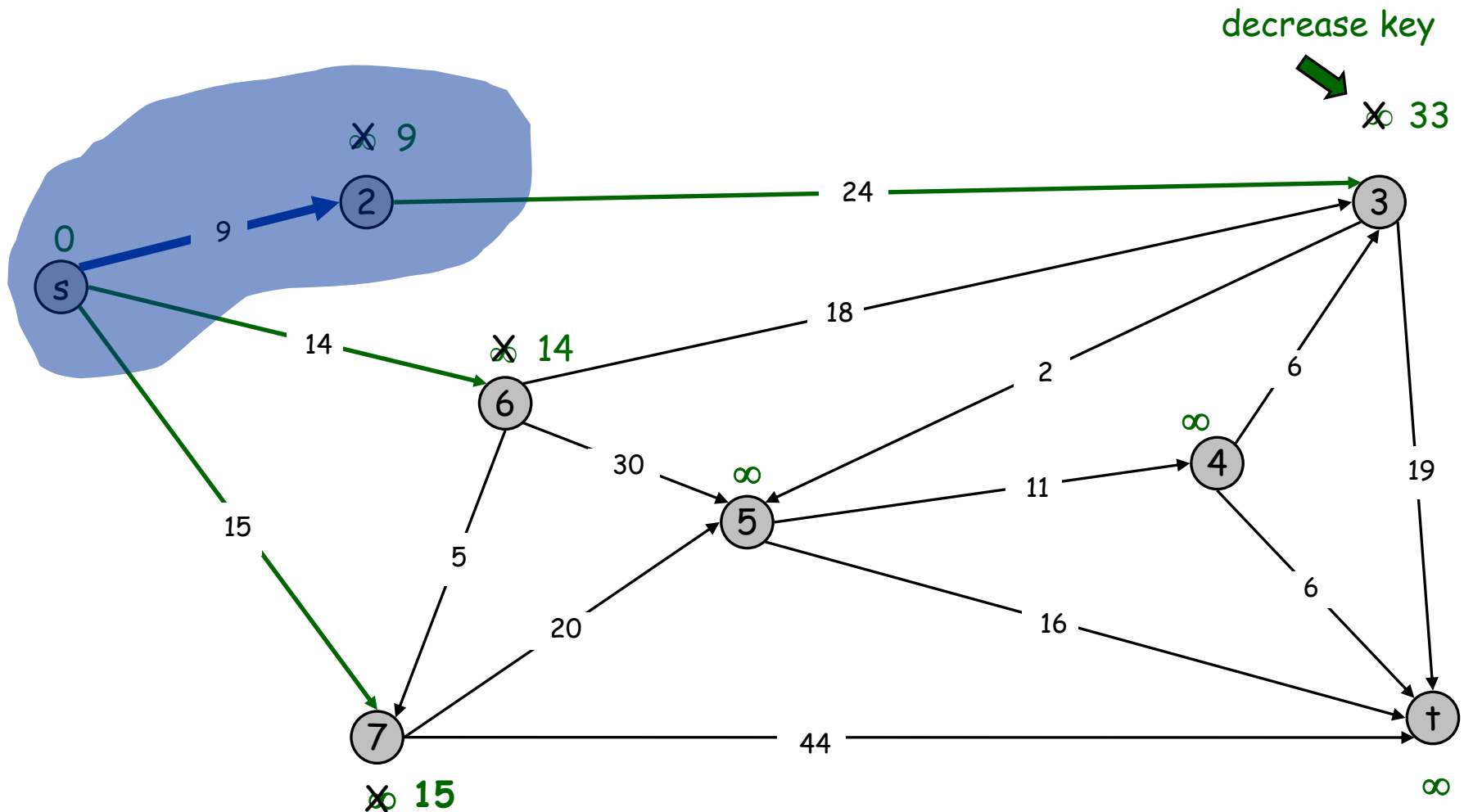
$Q = \{3, 4, 5, 6, 7, \dagger\}$



# Dijkstra's Shortest Path Algorithm

$S = \{s, 2\}$

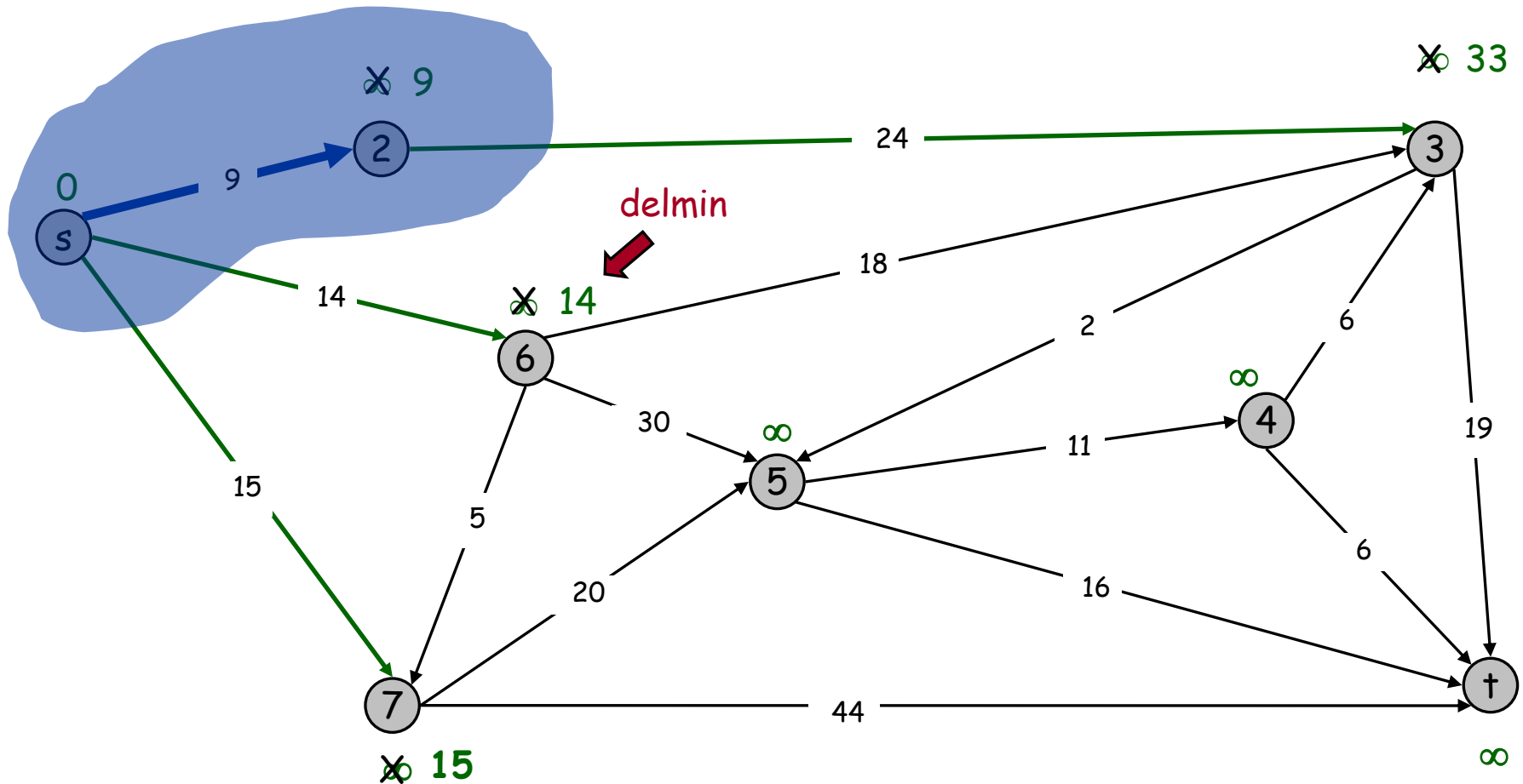
$Q = \{3, 4, 5, 6, 7, \dagger\}$



# Dijkstra's Shortest Path Algorithm

$S = \{s, 2\}$

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

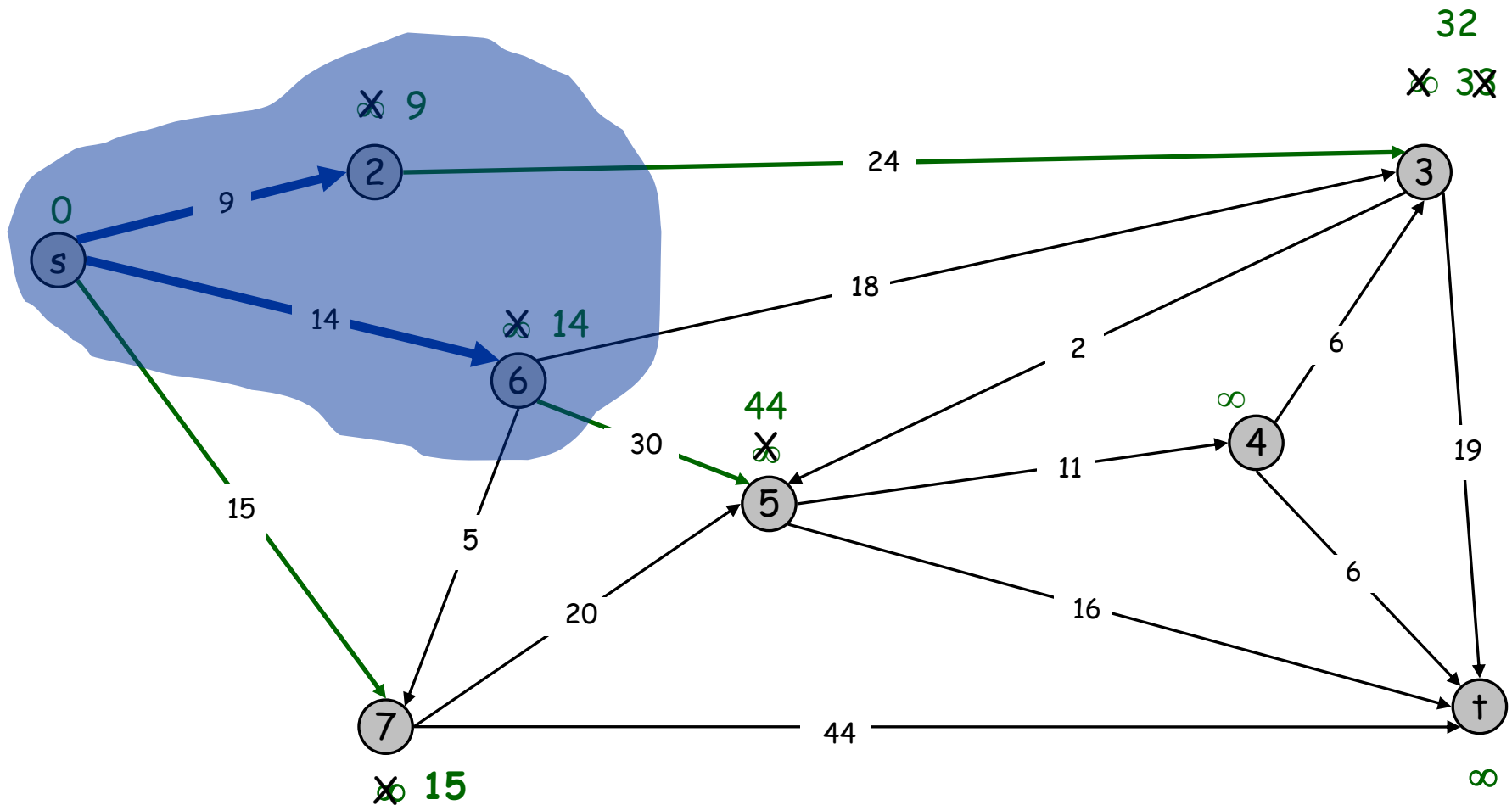




# Dijkstra's Shortest Path Algorithm

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

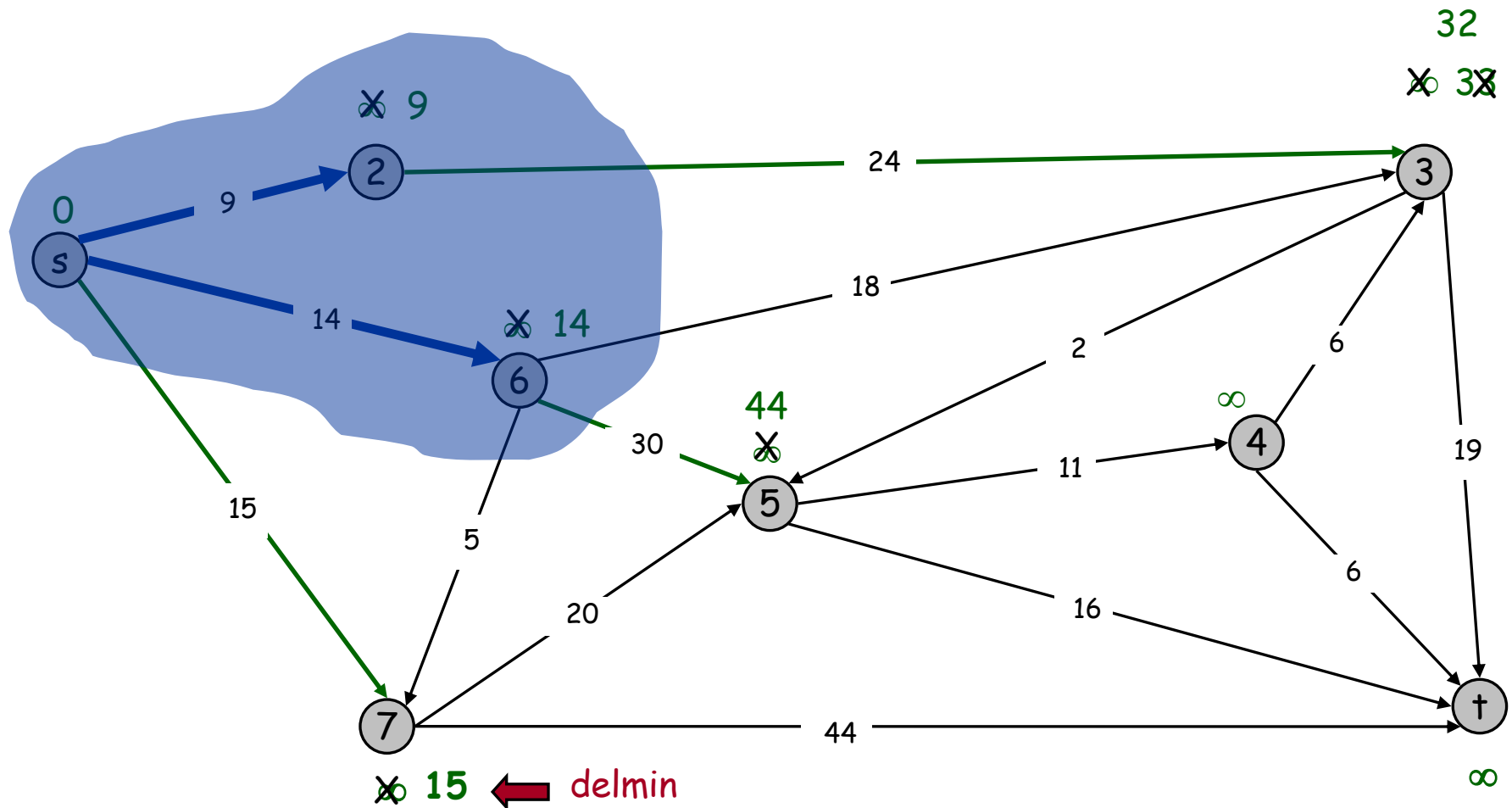
$Q = \{3, 4, 5, 7, \dagger\}$



# Dijkstra's Shortest Path Algorithm

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

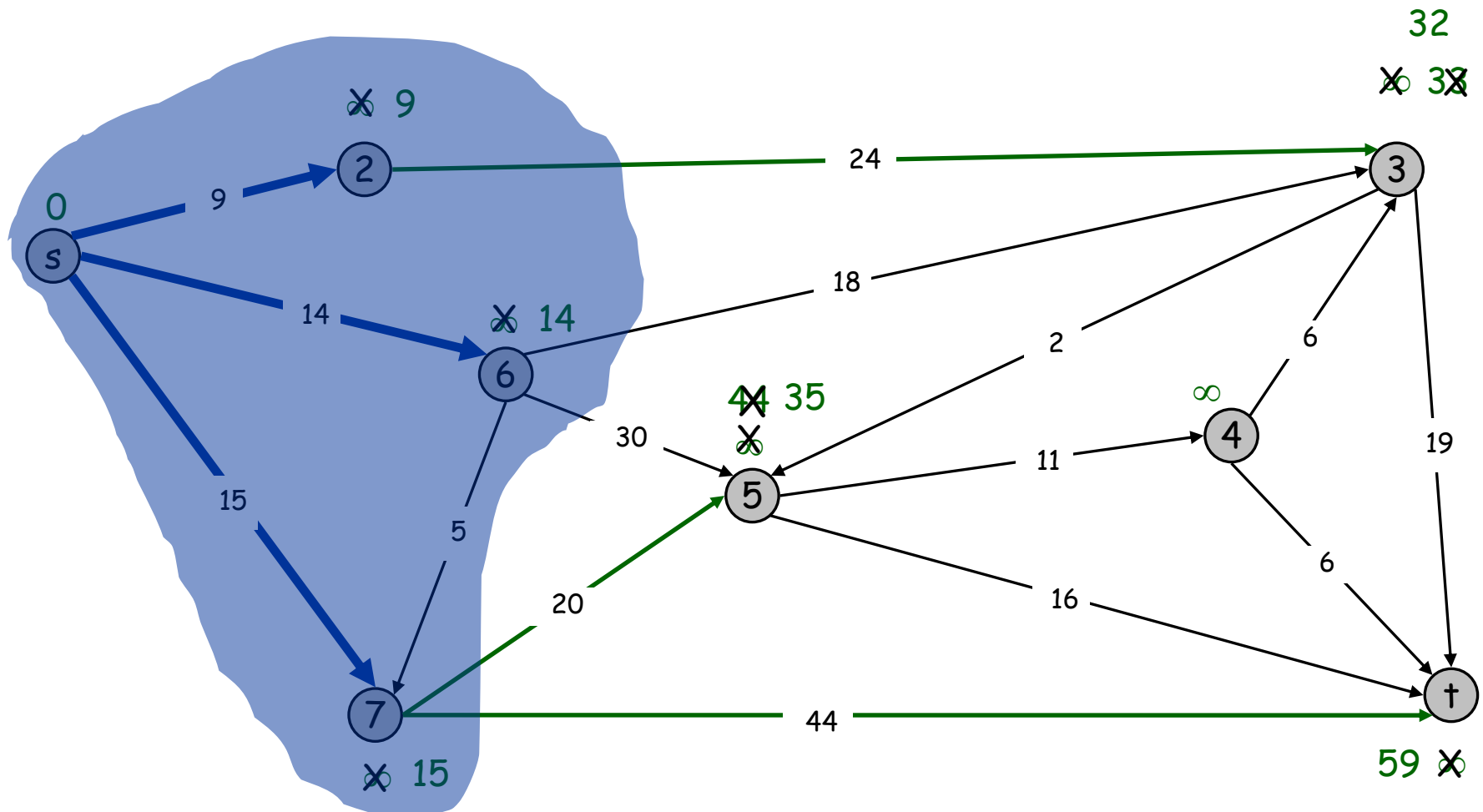
$Q = \{3, 4, 5, 7, \dagger\}$



# Dijkstra's Shortest Path Algorithm

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

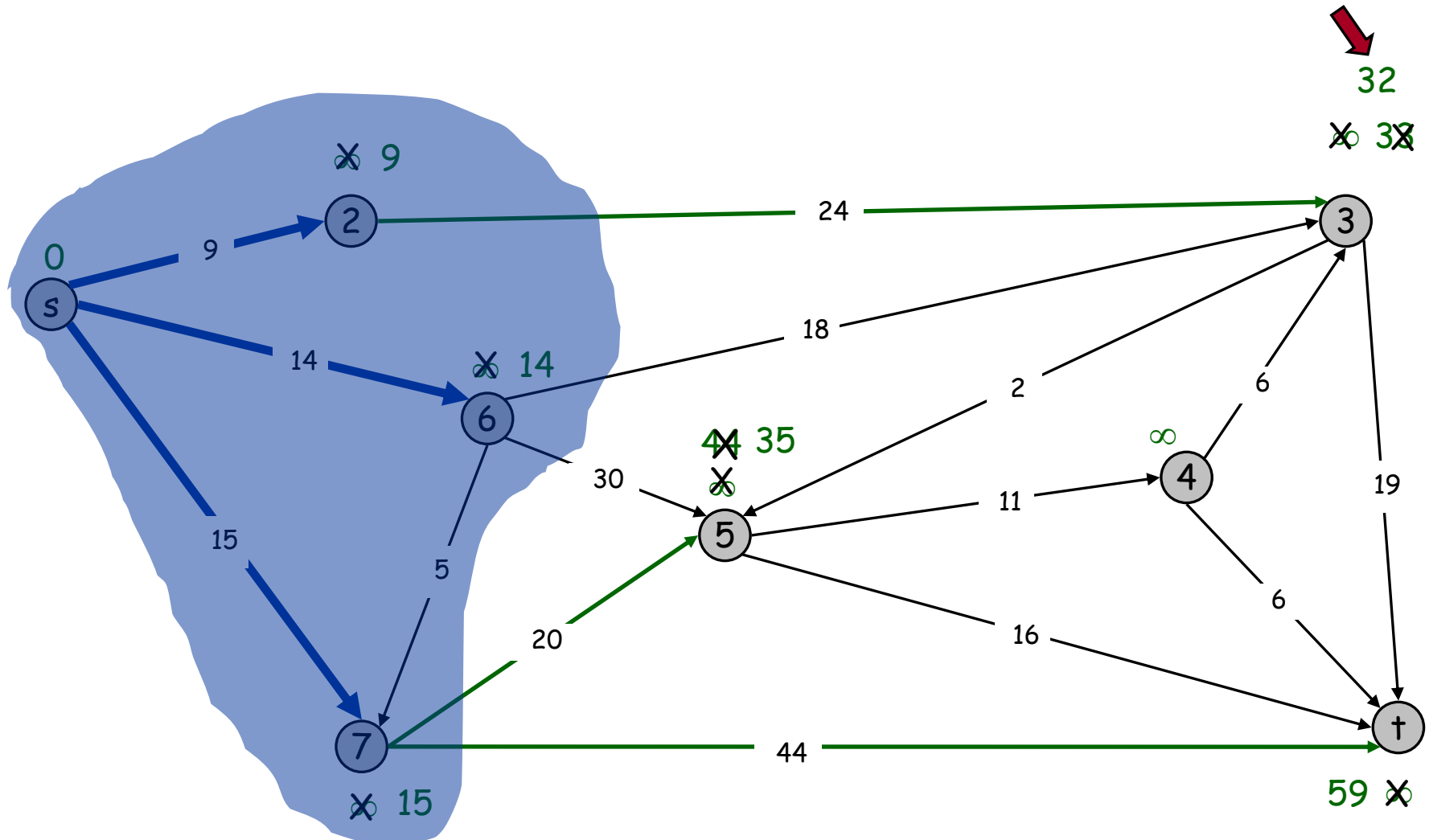
$Q = \{3, 4, 5, \dagger\}$



# Dijkstra's Shortest Path Algorithm

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

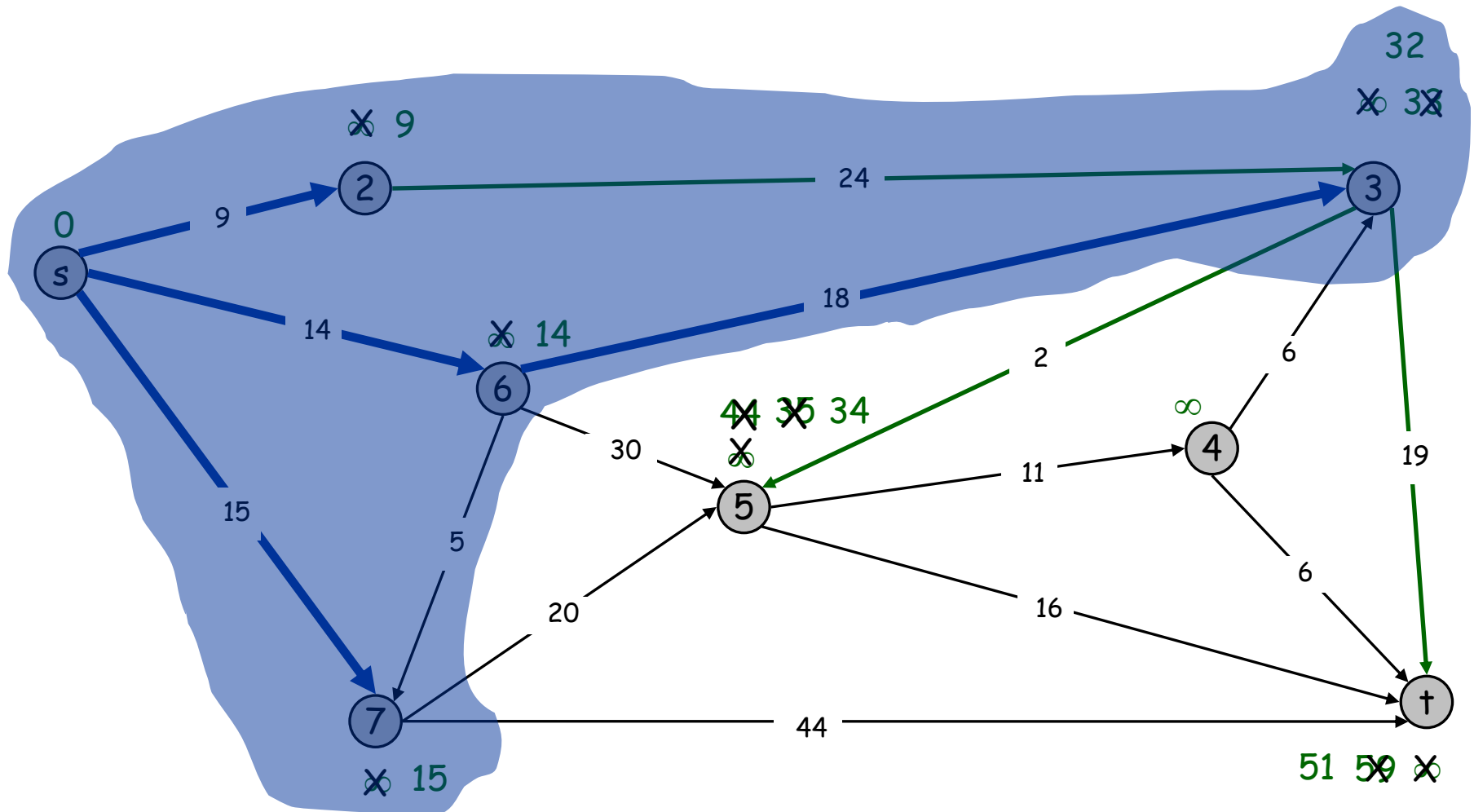
$Q = \{3, 4, 5, \dagger\}$



# Dijkstra's Shortest Path Algorithm

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

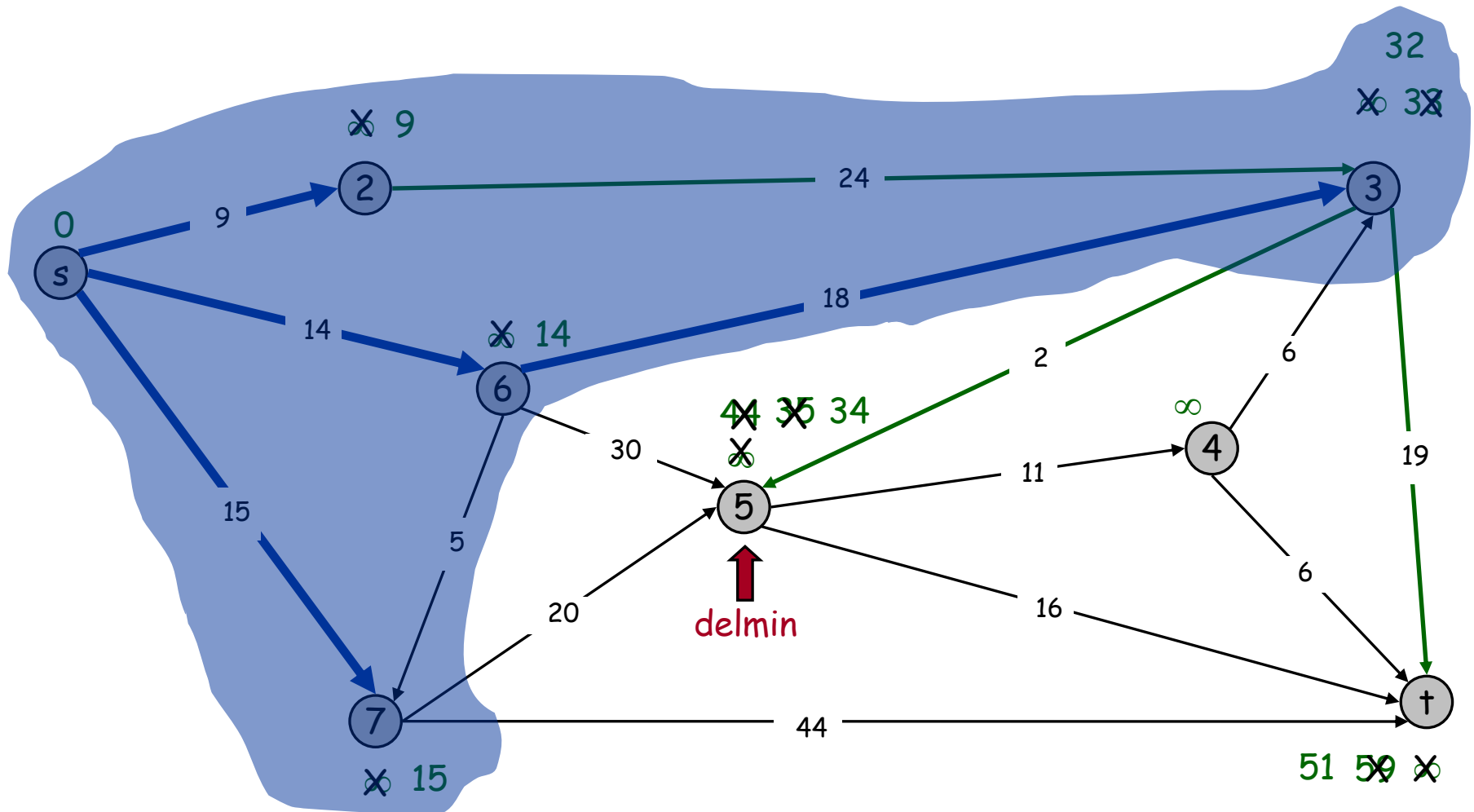
$Q = \{4, 5, \dagger\}$



# Dijkstra's Shortest Path Algorithm

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

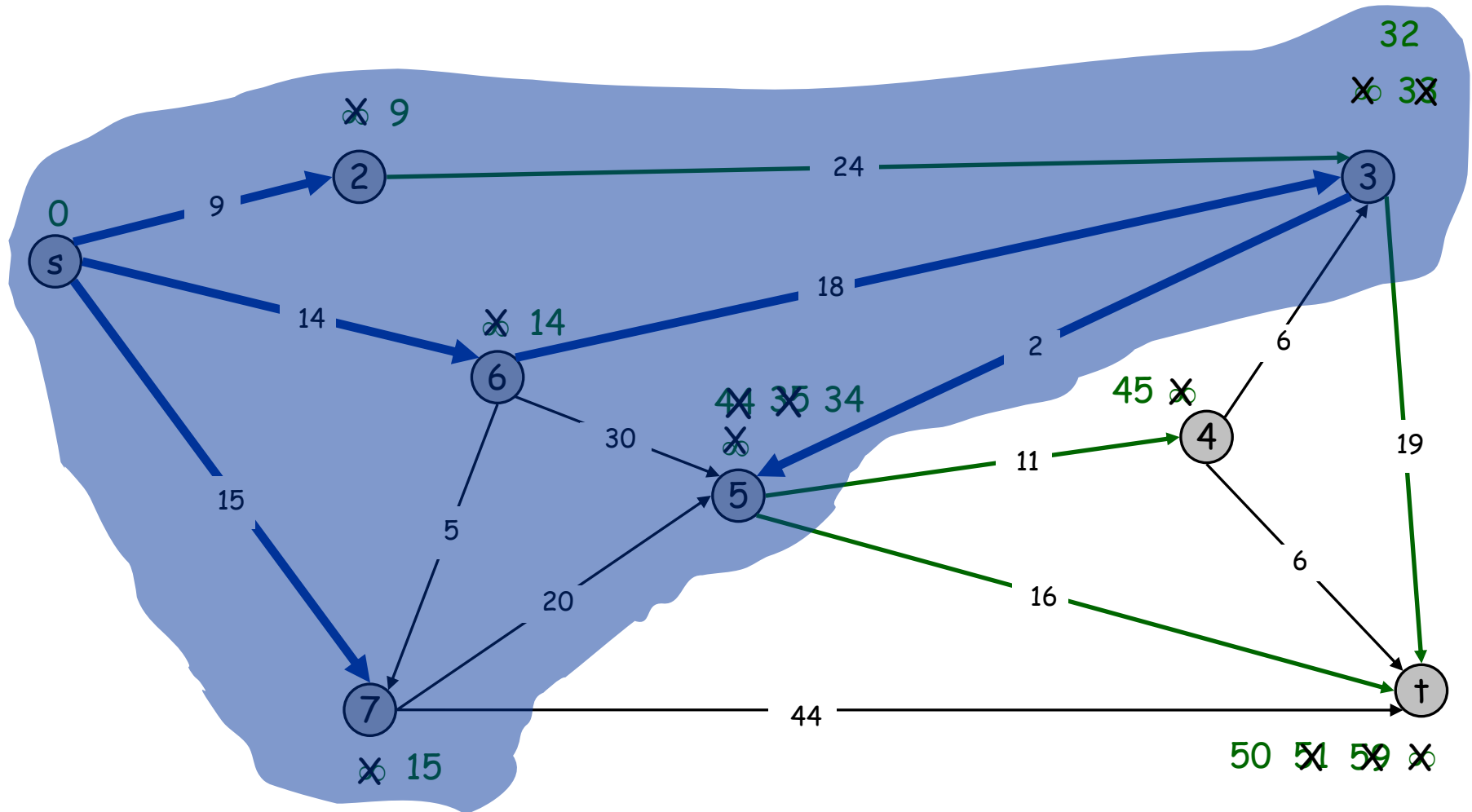
$Q = \{4, 5, \dagger\}$



# Dijkstra's Shortest Path Algorithm

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

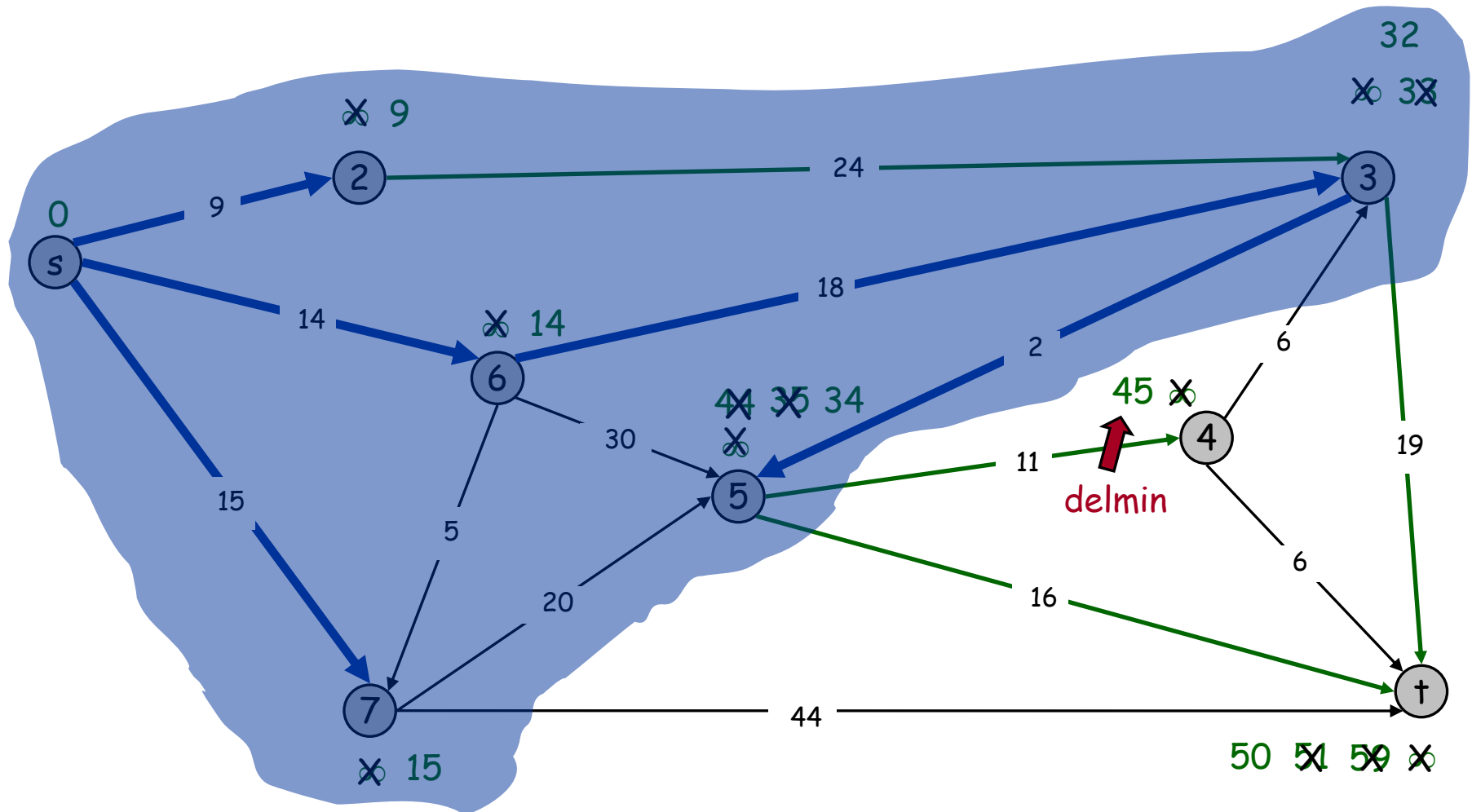
$Q = \{4, \dagger\}$



# Dijkstra's Shortest Path Algorithm

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

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

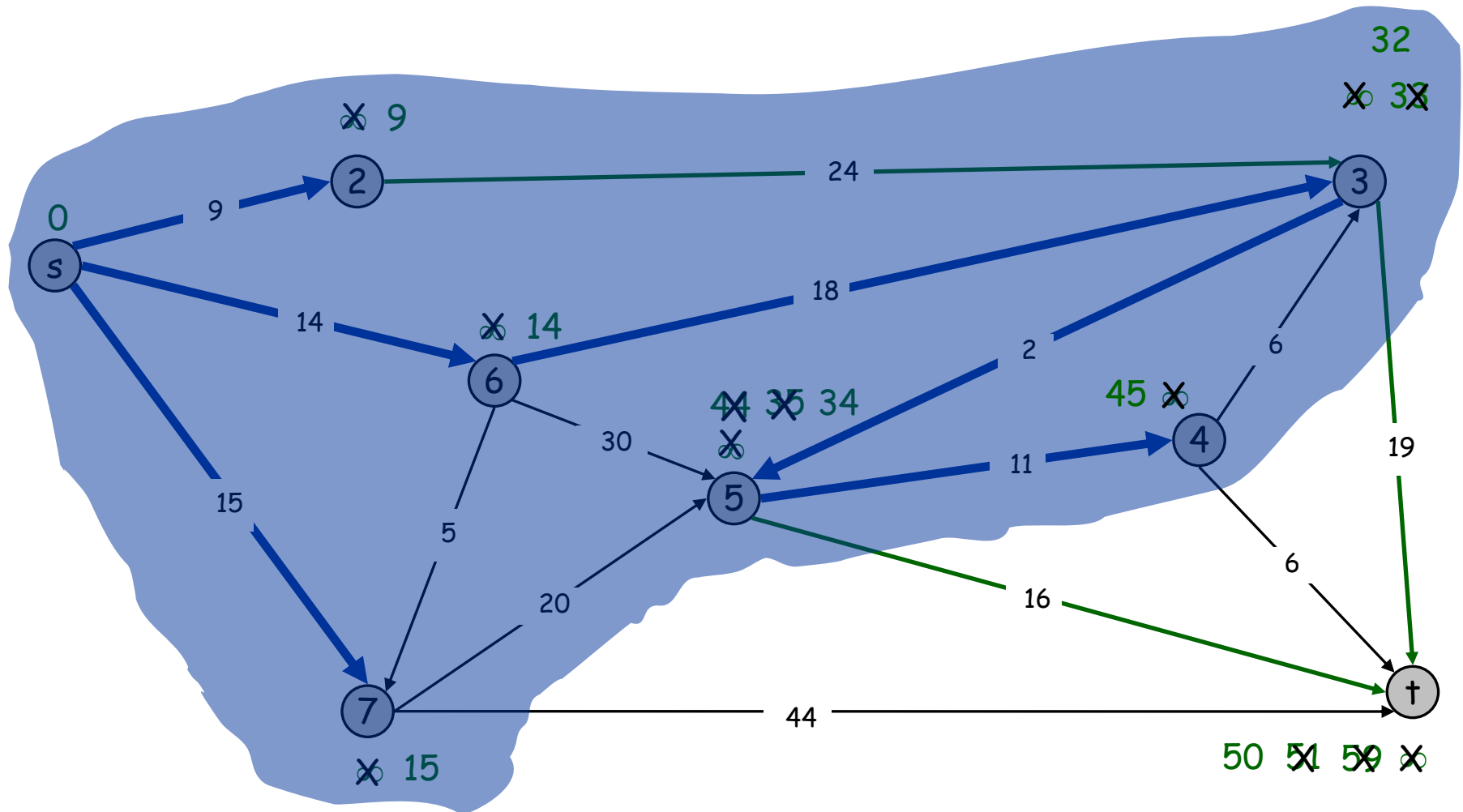




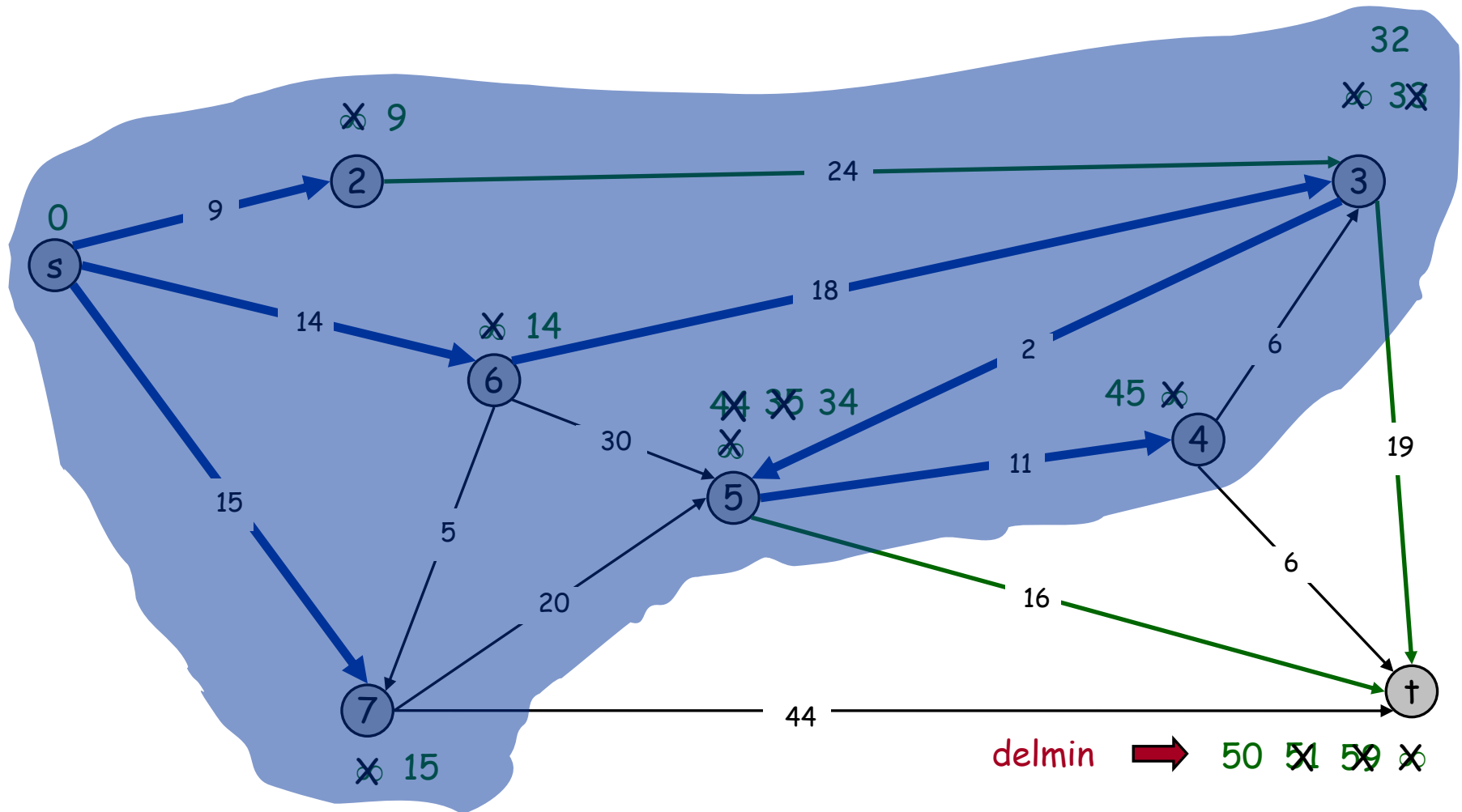
# Dijkstra's Shortest Path Algorithm

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

$Q = \{t\}$



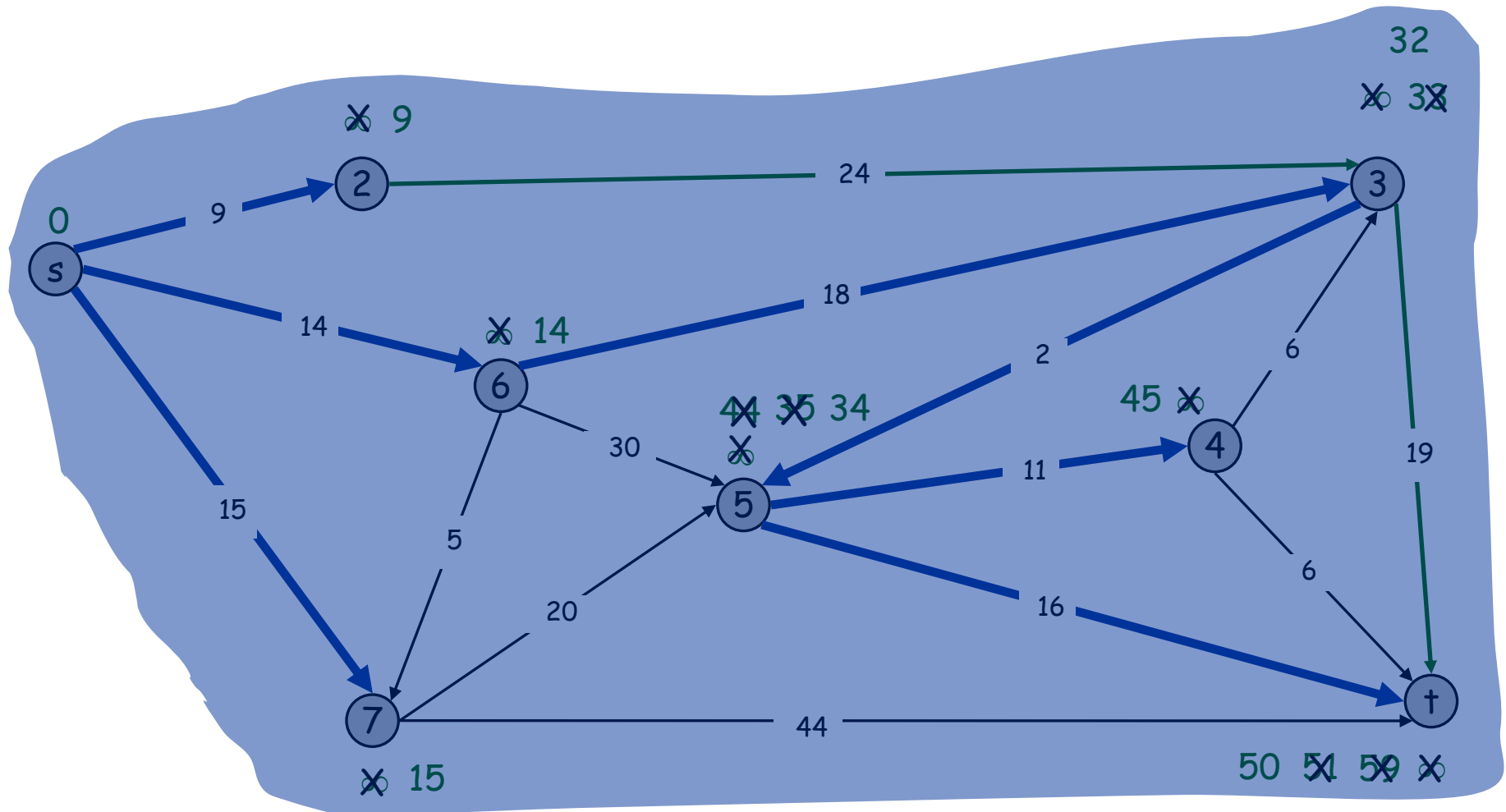
## Dijkstra's Shortest Path Algorithm

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


# Dijkstra's Shortest Path Algorithm

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

$Q = \{\}$



# Dijkstra's Shortest Path Algorithm

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

$Q = \{\}$

