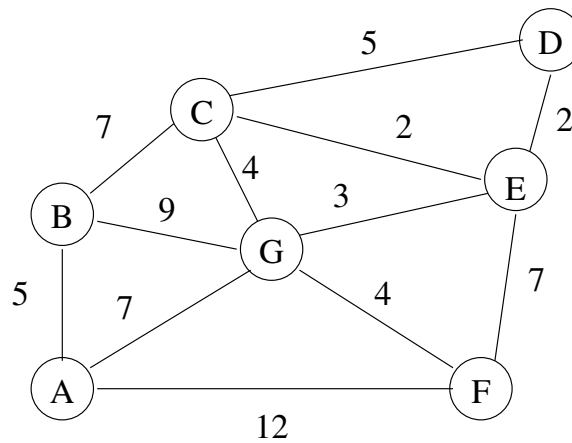# Dijkstra Worksheet



Execute Dijkstra's algorithm on the provided graph starting at vertex $A$. Indicate which vertex was selected at each iteration of the **while** loop and show the contents of the priority queue.

## Final Distances

| | |
|---|---|
| A:0 | E:10 |
| B:5 | F:11 |
| C:11 | G:7 |
| D:12 | |

## Iteration 1

$u = A$

$S = \{A\}$

Queue:

| | |
|---|---|
| | E:∞ |
| B:5 | F:12 |
| C:∞ | G:7 |
| D:∞ | |

## Iteration 2

$u = B$

$S = \{A, B\}$

Queue:

| | |
|---|---|
| | E:∞ |
| | F:12 |
| C:12 | G:7 |
| D:∞ | |

## Iteration 3

$u = G$

$S = \{A, B, G\}$

Queue:

| | E:10 |
|---|---|
| | F:11 |
| C:11 | |
| D:$\infty$ | |

## Iteration 4

$u = E$

$S = \{A, B, G, E\}$

Queue:

| | |
|---|---|
| | F:11 |
| C:11 | |
| D:12 | |

## Iteration 5

$u = C$

$S = \{A, B, G, E, C\}$

Queue:

| | |
|---|---|
| | F:11 |
| | |
| D:12 | |

## Iteration 6

$u = F$

$S = \{A, B, G, E, C, F\}$

Queue:

| | |
|---|---|
| | |
| | |
| D:12 | |