# Breadth-First Search Algorithm

BFS($G, s$)

```
 1  for each vertex u ∈ G.V − {s}
 2        u.color = WHITE
 3        u.d = ∞
 4        u.π = NIL
 5  s.color = GRAY
 6  s.d = 0
 7  s.π = NIL
 8  Q = ∅
 9  ENQUEUE(Q, s)
10  while Q ≠ ∅
11        u = DEQUEUE(Q)
12        for each v ∈ G.Adj[u]
13              if v.color == WHITE
14                    v.color = GRAY
15                    v.d = u.d + 1
16                    v.π = u
17                    ENQUEUE(Q, v)
18        u.color = BLACK
```