1) A _____ is used to find a datagram's path through a network.

2) In a network graph…
   - "Nodes" represent _____
   - Edges represent _____
   - Weights represent _____
   - A "shortest path" from node A to node G is _____
   _____.

3) Once the routing algorithm is complete, what is stored in the routing table?

4) Given the following network represented as a graph, trace Djikstra's algorithm to
   determine the shortest path from *X* to all nodes. Start with destination *T*, and complete
   the trace for any "left-over" nodes. Show the routing table for node *X*. You may use the
   algorithm shown in the lecture slides (and below), or use one of the textbook algorithms.
   Show the contents of all arrays and variables after each iteration of the outer loop.
   Initialization is done for you.

```
initialize S, D, R, P;
while (!empty(S)) {
   a = node in S with D[a] a "smallest element"
         ... if tied, take smallest a;
   if(D[a] == ∞) {
      error: "no path"; exit;}
   S = S - {a};
   for (each b such that edge (a,b) exists) {
      if(b in S) {
         c = D[a] + weight (a,b);
         if(c < D[b]) {
            R[b] = R[a];
            P[b] = a;
            D[b] = c;
         }
      }
   }
}
```
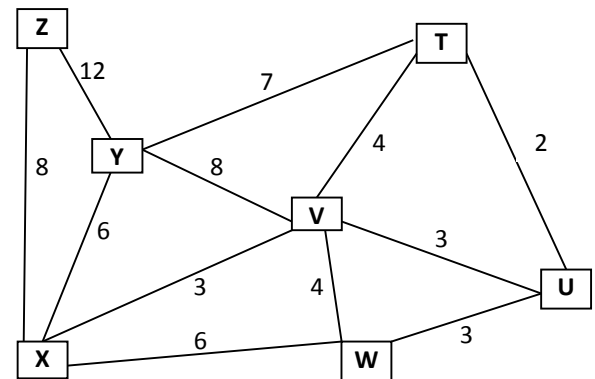
Initialize **S** = {T, U, V, W, Y, Z}
Initialize tables

Dx

T	∞
U	∞
V	3
W	6
X	-
Y	6
Z	8

Rx

T	0
U	0
V	V
W	W
X	-
Y	Y
Z	Z

Px

T	0
U	0
V	X
W	X
X	-
Y	X
Z	X