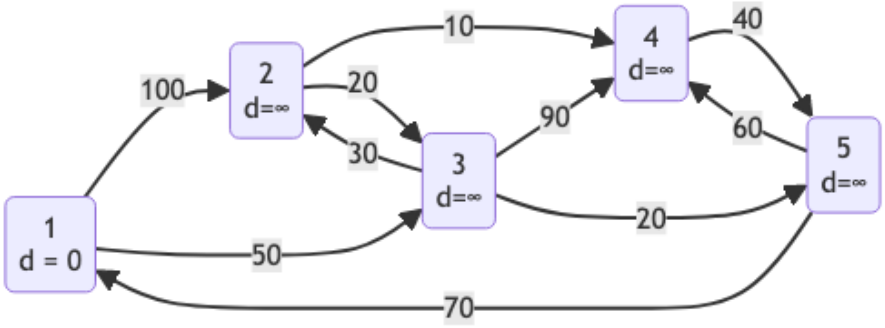
Q5

You are given a weighted directed graph where the values on the edges stand for distance in some unit.



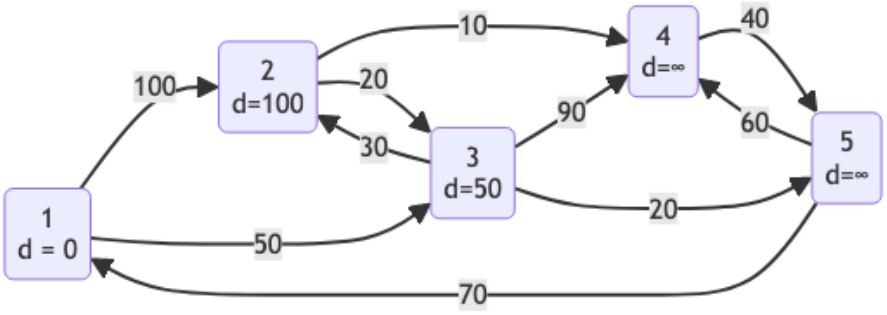
Task

```
DIJKSTRA(G, w, s)
1  INITIALIZE-SINGLE-SOURCE(G, s)
2  S = ∅
3  Q = G.V
4  while Q ≠ ∅
5      u = EXTRACT-MIN(Q)
6      S = S ∪ {u}
7      for each vertex v ∈ G.Adj[u]
8          RELAX(u, v, w)
```

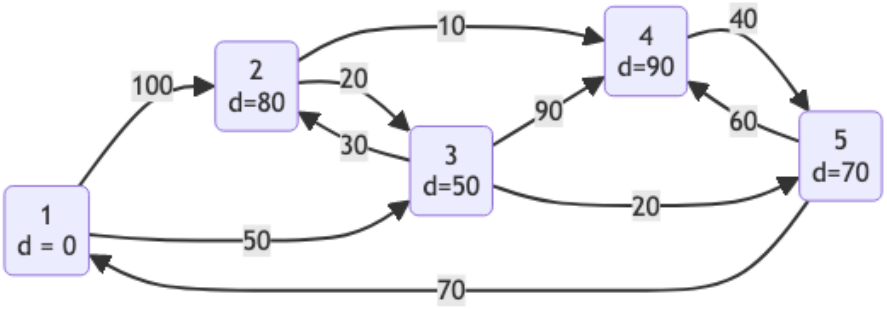
```
RELAX(u, v
1  if v.d >
2      v.d
3      v.π
```

You are ask to run Dijkstra's algorithm on the given graph starting from the vertex 1 and answer the following questions:

1. What is the d value at every vertex when u=3 and the execution is at line 6 in the algorithm



2. What is the d value at every vertex when u=4 and the execution is at line 4 in the algorithm



NB! The variable d holds the distance from vertex 1 to any other vertex. The vertex 1 has d=0 because it is at distance 0 from vertex 1.