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Individual Assignments #58

Assignment: *Section 9.6: 8 (a,b,c,d), 14, 18 (explain your answer)*

Q8

a) 2451
b) 2715
c) 2109
d) 2943

Q14

Assign a label of infinity to all the points in the graph except the starting point which gets a zero.

Find the lowest labeled vertex that has not yet been checked.

Add the amounts from that vertex to any connected points using the edge values. If the number is less than the label already assigned relabel that vertex with the lower value.

Keep track of the vertex's visited by placing them in a set.

Iterate until at the desired point.

Q18

Not necessarily. In many cases yes, but it is possible to imagine scenarios in which this is false.

For instance:

- one path from s to t includes the points n and m whose edges are 3 & 7
- another path from s to t includes the points q and r whose edges are 4 and 6

Thus, there are two paths of distinct edges that are the same length. (For purposes of this example these are the shortest paths possible). Thus the shortest path is not unique, there is more than one possible. Proof by counterexample.