CLRS 25.2-6 If the graph outputted by the Floyd-Warshall algorithm, $D^{(n)}$, contains a negative value at $D^{(n)}_{ii}$ for any $i$, then we have a negative weight cycle. A negative value in one of these positions implies that the distance between a vertex and itself is less than zero.

CLRS 25.2-8 Consider the following algorithm to compute the transitive closure of a graph $G = (V, E)$

```
Transitive_Closure(V, E)
1: T ← NIL // T will be an initially empty list of vertices
2: for each vertex $v \in V$ do
3:     $T ← T +$ each vertex $u \in V$ that is reached while performing BFS($G, v$)
4: end for
5: return $T$
```

The complexity of the operation at line 3 is given by the complexity of BFS, which is $O(V + E)$. The outer loop runs for every vertex $v \in V$, which means it runs $V$ times. Therefore, the complexity of Transitive Closure can be given by $O(V^2 + VE)$. However, we know that $E \leq V^2$, which means the algorithm runs in $O(VE)$ time.