Devin Gendron
Reading pg. 642-653. Set 10.2 #'s 2, 14

2. In the graph below, determine whether the following walks are trails, paths, closed walks, circuits, simple circuits, or just walks.

a. $v_1 e_2 v_2 e_3 v_3 e_4 v_4 e_5 v_2 e_2 v_1 e_1 v_0$

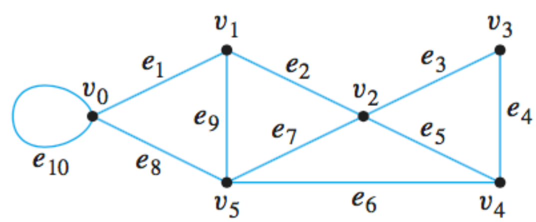
b. $v_2 v_3 v_4 v_5 v_2$

c. $v_4 v_2 v_3 v_4 v_5 v_2 v_4$

d. $v_2 v_1 v_5 v_2 v_3 v_4 v_2$

e. $v_0 v_5 v_2 v_3 v_4 v_2 v_1$

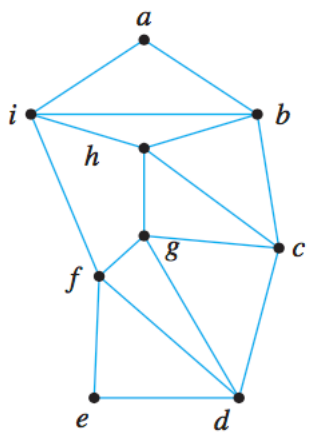
f. $v_5 v_4 v_2 v_1$



a. The walk is just a walk, because both edges and vertices are repeated and it doesn't have the same start/end point.
b. The walk is many types, because no edges are repeated, vertices are repeated specifically the start and end point. By this definition, it could be a trail, a closed walk, a simple circuit or a circuit.
c. Edges, vertices, are repeated and it ends on the point it started, so the walk is a closed walk.
d. Edges are not shared, but vertices are repeated and ends on the same start/end, so the walk is a trail, a closed walk, or a circuit.
e. Edges are not shared, but a vertex is shared that is not in the beginning/end, so the walk is a trail.
f. No edges or vertices are shared and the walk does not end on the same point, so it is a path.

Determine which of the graphs in 12–17 have Euler circuits. If the graph does not have an Euler circuit, explain why not. If it does have an Euler circuit, describe one.

14.



This graph does have at least one Euler circuit. This is because no edges are repeated, just vertices including the start/end point. One Euler circuit found is: ifedfgdcghcbhibai