

2.

- a) Walk – does not start/end on same vertex, uses e_2 twice, v_1 twice and v_2 twice
- b) Simple Circuit – start/end on same vertex and uses every other edge/vertex once
- c) Closed Walk – start/end on same vertex, but uses v_2 , v_4 and e_5 twice
- d) Circuit – start/end on same vertex, but uses v_2 three times
- e) Trail – does not start/end on same vertex. Does not use any edges twice, but uses v_2 twice.
- f) Path – does not start/end on same vertex and does not use any edge/vertex twice.

9.b

Yes, G has a Euler circuit. Theorem 10.2.4 states a graph has a Euler circuit if it is connected and every vertex has a positive even degree.

13.

No, this does not have a Euler circuit because vertices v_1 , v_7 , v_8 , and v_9 have odd degree. This goes against theorem 10.2.4

20.

No, this does not have a Euler path. Though u and w have odd degree, e and h also have odd degrees. This goes against theorem 10.2.5 that states u and w must have odd degree, but all other vertices must be positive and even.