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Section 10.5: 10, 14, 26a,b,c (7th edition)

10.

Yes. Can construct a graph model where 4 zones are separated as vertices and where the bridges are edges. This graph would therefore have a Euler circuit. Ex: A, C, B, D, C, B, A.

14.

Yes. Can construct a model where each corner and intersection is represented by a vertex and where lines between the coreners and intersections are represented by edges. By Theorem 2, there's a Euler path in the graph. This gives us a way to draw the picture without lifting or retracing.

26.

a) K_n has an Euler circuit for n odd, and no Euler circuit for n even. K_1 must be handled separately, and trivially has an Euler circuit since it has no edges. For n ≥ 2, we may apply Theorem 1: K_n has an Euler circuit if and only if each of its vertices has even degree, which holds if and only if n−1 (the degree of each vertex) is even, if and only if n is odd.

b) C_n has an Euler circuit for all n (here n ≥ 3 by definition). This may be seen by applying Theorem 1 and noting that each vertex has degree 2. Also, we may give an explicit description of the Euler circuit: just go around the "circle" that makes up the graph.

c) W_n does not have an Euler circuit for any n. This may be seen by applying Theorem 1 and noting that all external points on W_n have odd degree.