

Exercise Set 8

Exercise 8.1 Show that a connected graph U is unicyclic if and only if there exists a perfect matching between vertices and edges, such that the matched vertex and edge are adjacent.

(6 Punkte)

Exercise 8.2 Classify all matroids with at most 4 elements.

(6 Punkte)

Exercise 8.3 Classify all connected graphs G such that the following conditions are satisfied (all at once):

- (1) all valencies are at least 2;
- (2) $|E(G)| = |V(G)| + 1$;
- (3) G is not Hamiltonian.

(6 Punkte)

Exercise 8.4 Find a Hamiltonian cycle in the edge graph of an n -cube, for $n \geq 2$.

(6 Punkte)

Submission of the exercises: Tues, 16.12.25, before the tutorial (until 12:15) into the postbox 54 in MZH 1st floor, or submission at the beginning of the 12:30-tutorial.