

Name .....

0.	1.	2.	3.	4.	5.	$\Sigma$ .

	$G_1$	$G_2$
Euler tour		
Hamilton path		
$\kappa(G_1) =$		
$\kappa'(G_1) =$		
$\chi'(G_1) =$		

1. Draw a graph with the following degree sequence or prove it is not possible.

a) (5,5,5,4,3,3,3) b) (5,5,4,4,4,3,3) c) (5,5,5,3,3,3,3)

2. Write Dirac Theorem. Prove or disprove: every 8-regular graph with 15 vertices has hamilton cycle.

3. Write Euler Theorem. Prove or disprove: every 8-regular graph with 15 vertices has Euler tour.

4. Prove or disprove: every 8-regular graph with 15 vertices has chromatic index equal 8.

5. Prove that in a tree with  $n$  vertices and maximum degree 3 there is at most  $\frac{n+2}{2}$  leaves.

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a) (5,5,4,4,3,3,3) b) (5,5,4,4,3,3,3) c) (5,4,4,4,3,3,3)

2. Write Dirac Theorem. Prove or disprove: every 7-regular graph with 14 vertices has hamilton cycle.

3. Write Euler Theorem. Prove or disprove: every 7-regular graph with 14 vertices has Euler tour.

4. Prove or disprove: every 7-regular graph with 14 vertices has chromatic index equal 8.

5. Prove that in a tree with  $n$  vertices and maximum degree 3 there is at most  $\frac{n+2}{2}$  leaves.