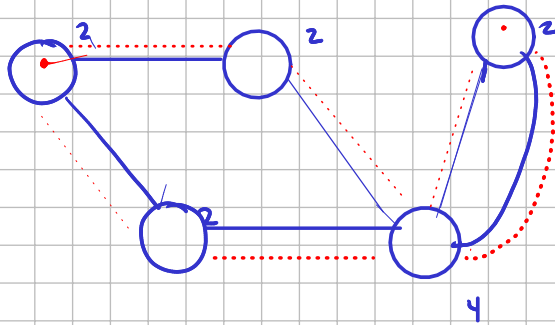
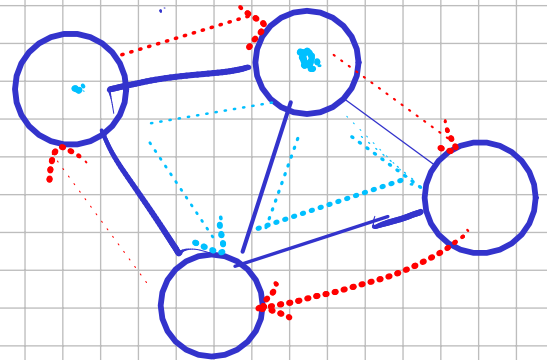


## Circuitos y caminos Eulerianos

### Cobertura de las aristas con circuitos o caminos SIMPLES



Circuito o camino Hamiltoniano  
Son caminos o circuitos SIMPLES  
que cubren vértices



## Circuitos/Caminos Eulerianos

### Hamiltonianos

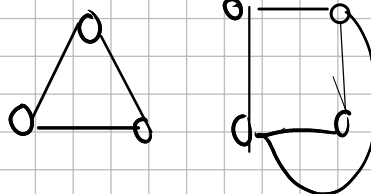
$K_n$ ,  $K_{n,m}$ ,  $W_n$ ,  $C_n$

$\overline{K_n}$ ,  $\overline{K_{n,m}}$ ,  $\overline{W_n}$ ,  $\overline{C_n}$

$$K_n \quad \underbrace{\{n-1, n-1, n-1, \dots, n-1\}}_n$$

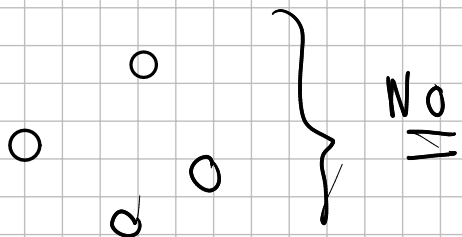
Circ  
Euleriano  $n$  impar

Hamiltoniano  $n \geq 3$



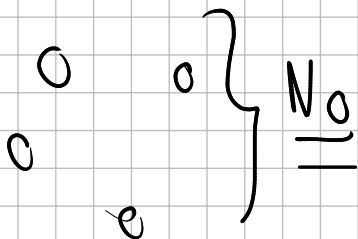
$$K_n = \{0, 1, \dots, n\}$$

Euler



No

Hamiltoniano



No

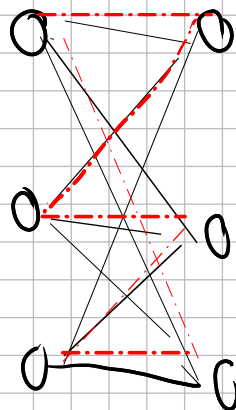
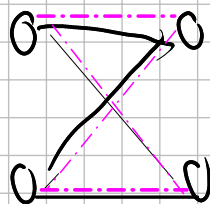
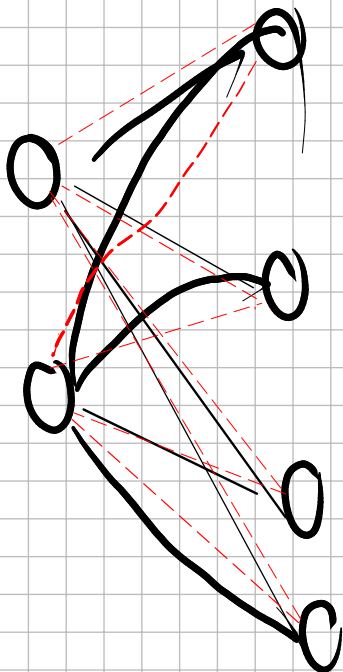
$K_{n,m}$

Euler

$n$  y  $m$  pares

Hamilton

$n = m$



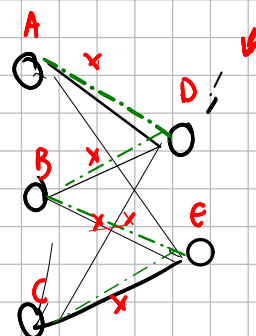
Camino Hamiltoniano

A-D-B-E-C

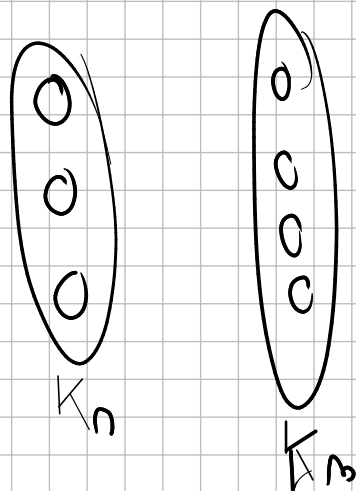
Camino Euleriano

$C^2-A^2-D^3-B^4-E^5-C^6-D$

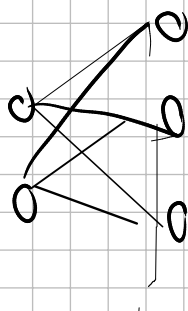
✓



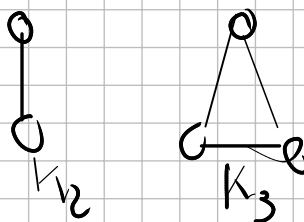
$K_{n,m}$



$K_{2,3}$



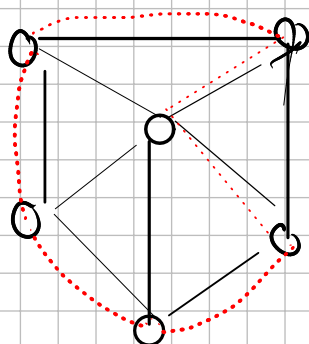
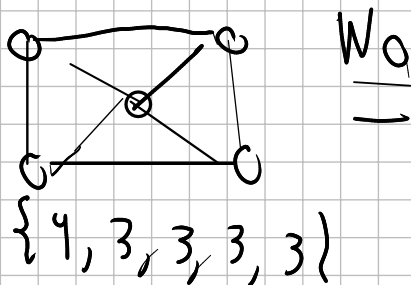
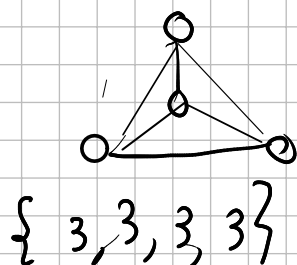
$K_{2,3}$



Dado que el grafo bipartito complemento NO ES CONEXO, no tiene circuito ni camino euleriano ni hamiltoniano.

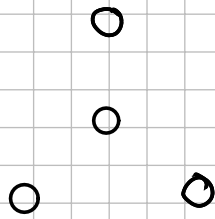
$W_n$

Euler



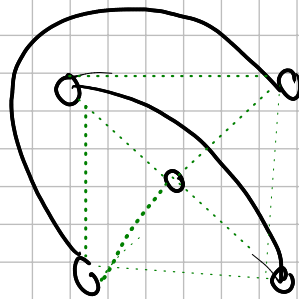
Circuito Hamiltoniano  
Camino Hamiltoniano

$\overline{W_n}$



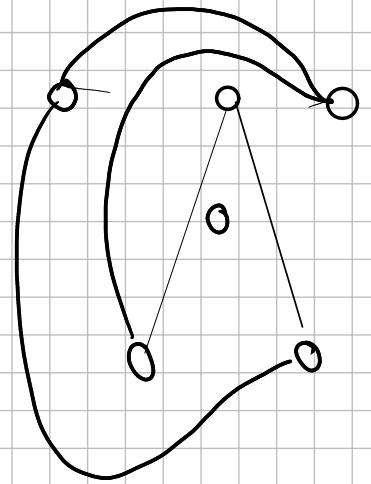
$\overline{W_3}$

No Euler  
No Hamilton



$\overline{W_4}$

No E  
No H



$\overline{W_5}$

$$W_5 = \{5, 3, 3, 3, 3, 3\}$$

$$K_6 = \{5, 5, 5, 5, 5, 5\}$$

$$\overline{W_5} = \{0, 2, 2, 2, 2, 2\}$$

$$W_6 = \{6, 3, 3, 3, 3, 3, 3\}$$

$$K_7 = \{6, 6, 6, 6, 6, 6, 6\}$$

$$\overline{W_6} = \{0, 3, 3, 3, 3, 3, 3\}$$

$$W_7 = \{7, 3, 3, 3, 3, 3, 3, 3\}$$

$$K_8 = \{7, 7, 7, 7, 7, 7, 7, 7\}$$

$$\overline{W_7} = \{0, 4, 4, 4, 4, 4, 4, 4\}$$

$\overline{W_n}$  Euleriano

n es impar y  
 $n \geq 5$

No tiene circuito ni camino hamiltoniano por el del CENTRO que queda inconexo

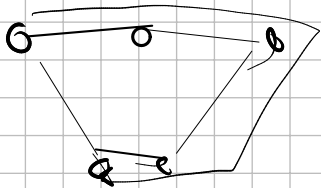
$C_n$

Circuito Euleriano: SÍ

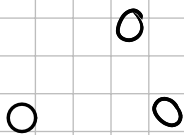
Camino Euleriano: NO

Circuito Hamiltoniano: SÍ

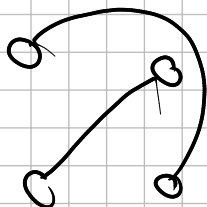
Camino Hamiltoniano: SÍ



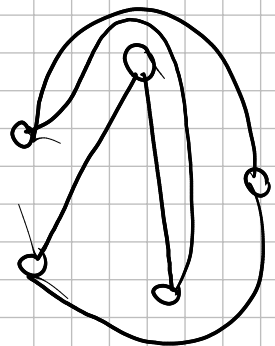
$\overline{C_n}$



$\overline{C_3}$



$\overline{C_4}$



$\overline{C_5}$

$$C_6 = \{2, 2, 2, 2, 2, 2\}$$

$$K_6 = \{5, 5, 5, 5, 5, 5\}$$

$$\overline{C_6} = \{3, 3, 3, 3, 3, 3\}$$

$$C_8 = \{2, 2, 2, 2, 2, 2, 2, 2\}$$

$$K_8 = \{7, 7, 7, 7, 7, 7, 7, 7\}$$

$$\overline{C_8} = \{2, 2, 2, 2, 2, 2, 2, 2\}$$

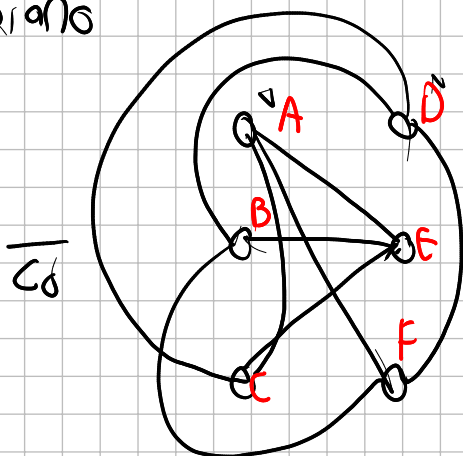
Circuito Euleriano

$C_n,$

$n$  es impar  $\wedge n \geq 5$

Hamiltoniano

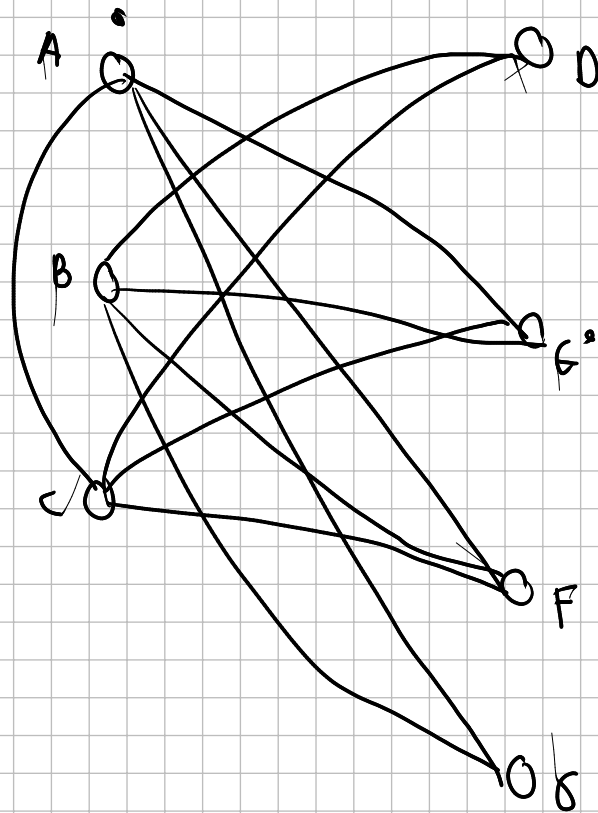
$C_6$  SÍ



A - F - B - D - C -

E - (A)

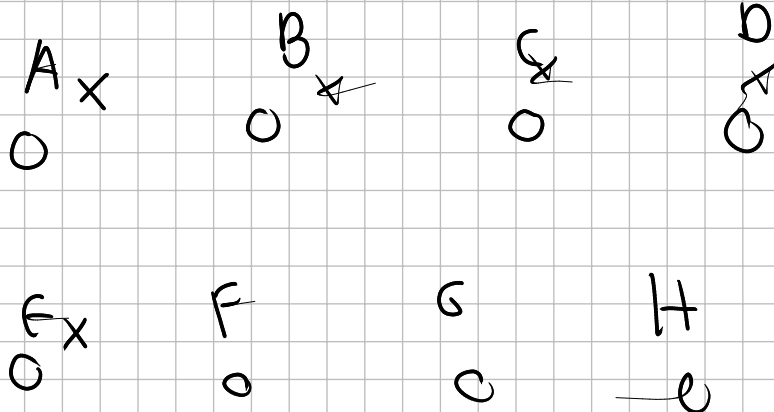
C9



A - E - C - D -

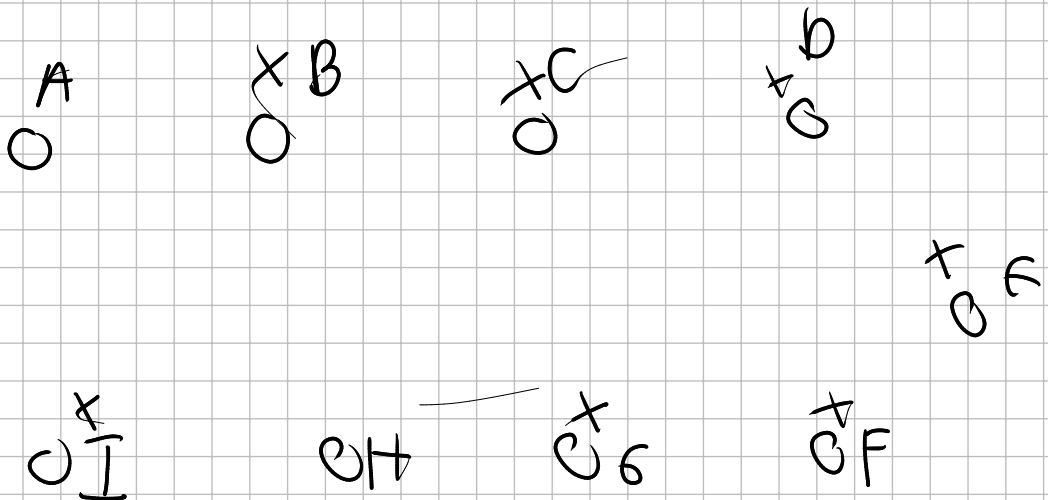
F - B - G - A

C8



A - C - G - E - B - D - F - H - A

C9



A - C - E - G - I - B - D - F - A - A

C<sub>10</sub>

A  
O

X<sup>B</sup>  
O

X<sup>C</sup>  
O

X<sup>D</sup>  
O

X<sup>E</sup>  
O

X<sup>F</sup>  
O

X<sup>G</sup>  
O

X<sup>H</sup>  
O

X<sup>I</sup>  
O

F  
C

A - C - E - G - I - B - D - J  
- F - H - A