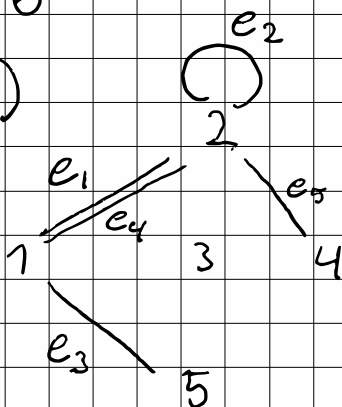


Øving 6

oppg 1)

a)



b) $e_1 \parallel e_4$

c) e_2

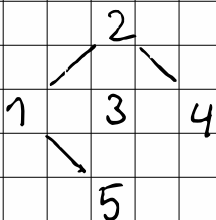
d) Det er ikke en simpel graf

e) Det er ikke en komplett graf

f) graden til 2 er 5

g) total grad: $(\sum_{v \in V(G)} \deg(v)) \cdot 2 = 10$

h)



$$e_1 = \{1, 2\}$$

$$e_2 = \{2, 4\}$$

$$e_3 = \{1, 5\}$$

Øv 6 Oppg 2)

ulv = u
geit = g
kål = k

$(ughB) \rightarrow (uk/Bg) \rightarrow (ukB/g) \rightarrow$

$(u/Bkg) \rightarrow (ugB/k) \rightarrow (g/Buk) \rightarrow (gB/uk)$

ulv \Rightarrow geit
geit \Rightarrow kål

$\Rightarrow \underline{\underline{(/ ughB)}}$

Steg:

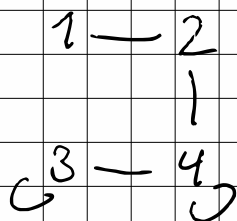
- Sender geit over
- Sender kål, men
tar med oss geit
tilbake
- bytter ulv og geit
- Sender ulv over
- henter geit

Øv 6)
Oppg 3)

a) totalgrad = 7

$7 \div 2 \neq 0$ finnes ikke

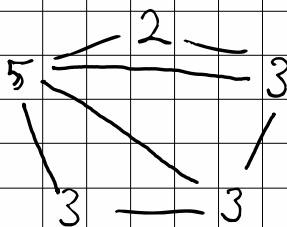
b) totalgrad = 10, kan eksistere



c) totalgrad = 16

$16 \neq 5 \cdot 2$

5 hjørner, kan ikke være en
simpler graf



ØV 6)
oppg 4)

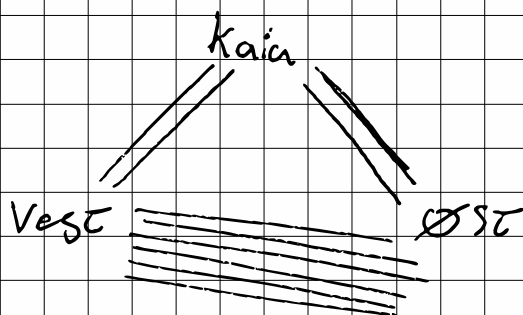
a) $V_1 e_2 V_2 e_3 V_3 e_4 V_4 e_5 V_2 e_2 V_1 e_1 V_0$
krets = unihe e: e_2 brukes 2 ganger X

b) $V_4 e_5 V_2 e_3 V_3 e_4 V_4 e_6 V_5 e_7 V_2$
Spor = unihe e: alle e unihe ✓

c) $V_2 e_3 V_3 e_4 V_4 e_6 V_5 e_7 V_2$
Spor = unihe e: alle e unihe ✓

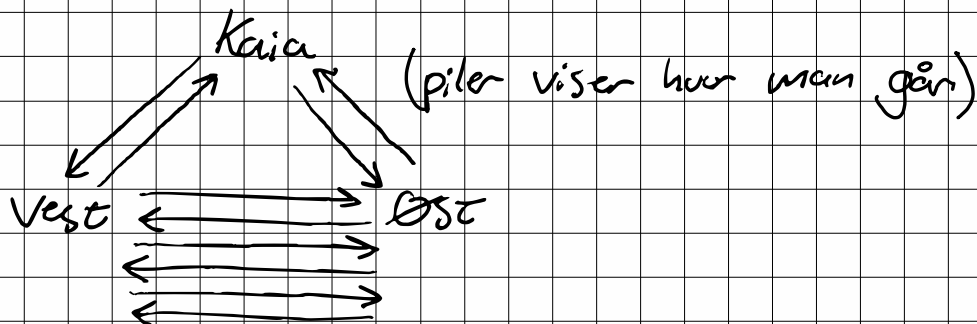
d) $V_2 e_3 V_3 e_4 V_4 e_6 V_5 e_7 V_2$
Stampet krets = krets + $(V=W)$: $V=W$, alle e unihe ✓

ØV 6)
Oppg 5)



Starten i Øst

Øst \rightarrow Kaia \rightarrow (Vest \rightarrow Øst \rightarrow Vest) $\times 3 \rightarrow$ Kaia \rightarrow Øst



ØV 6)
oppg 6)

a) Verken euler spor eller krets.

ikke alle har partall grad og
det er flere enn 2 med oddetall grad

b) Dette er en euler krets og spor

c) verken spor eller krets

d) Dette er ett euler spor

oppg 7)

a) Dette er en hamilton krets

$b \rightarrow a \rightarrow d \rightarrow g \rightarrow f \rightarrow e \rightarrow c \rightarrow b$

b) Dette er en hamilton krets

$V_1 \rightarrow V_0 \rightarrow V_3 \rightarrow V_2 \rightarrow V_6 \rightarrow V_7 \rightarrow V_4 \rightarrow V_5 \rightarrow V_1$

c) Dette er ikke en hamilton krets

avg)
ppg 8)

a)

	1	2	3	4	5
1	0	0	1	0	0
2	0	0	1	0	0
3	0	0	0	1	0
4	0	1	0	0	1
5	0	0	0	0	0

$$G = \begin{bmatrix} 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

b)

$$G \times G =$$

	0	0	1	0	0
	0	0	1	0	0
	0	0	0	1	0
	0	1	0	0	1
	0	0	0	0	0
0	0	1	0	0	0
0	0	1	0	0	0
0	0	0	1	0	0
0	1	0	0	1	0
0	0	0	0	0	0

$$G \times G = \begin{bmatrix} 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 & 1 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

length 2 =

- 1 → 4
- 2 → 4
- 3 → 2
- 3 → 5
- 4 → 3
- 4 → 4

SV 6)
opp 8)

c) na ho matrice:

$$\begin{array}{c|cccc} & a & b & c & d \\ \hline a & 0 & 2 & 1 & 0 \\ b & 2 & 0 & 1 & 2 \\ c & 1 & 1 & 0 & 1 \\ d & 0 & 2 & 1 & 0 \end{array}$$

d)

$$\begin{array}{cccc|cccc} & & & & 0 & 2 & 1 & 0 \\ & & & & 2 & 0 & 1 & 2 \\ & & & & 1 & 1 & 0 & 1 \\ & & & & 0 & 2 & 1 & 0 \\ 0 & 2 & 1 & 0 & 5 & 1 & 2 & 5 \\ 2 & 0 & 1 & 2 & 1 & 9 & 4 & 1 \\ 1 & 1 & 0 & 1 & 2 & 4 & 3 & 2 \\ 0 & 2 & 1 & 0 & 5 & 1 & 2 & 5 \end{array}$$

$$a \rightarrow d = \underline{\underline{5}}$$