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DBerate Math
Workshops 14 & 146

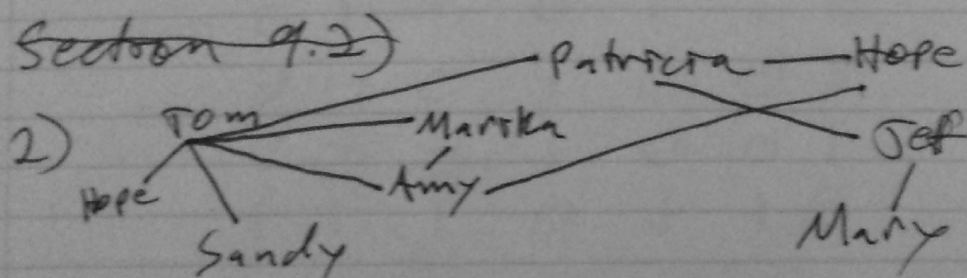
25-Sep-15
HW 2

Workshop 14:

Section 9.1)

- 1) a) pseudograph
b) Multigraph
c) Directed pseudograph

~~Section 9.2)~~



Section 9.2)

1) Let $G = (V, E)$

$$2m = \sum_{v \in V} \deg(v)$$

- 2) Vertices = 4
Edges = 8
- | | |
|----------------------------|-----------------|
| $\deg^{\text{out}}(a) = 2$ | $\deg^+(b) = 4$ |
| $\deg^{\text{in}}(a) = 2$ | $\deg^-(b) = 3$ |
| $\deg^+(c) = 1$ | $\deg^+(d) = 1$ |
| $\deg^-(c) = 2$ | $\deg^-(d) = 1$ |

3) a)

	a	b	c	d	e
a	0	1	0	1	1
b	1	0	1	0	0
c	0	1	0	1	1
d	1	0	1	0	0
e	1	0	1	0	0

Not bipartite

b)

	a	b	c	d	e	f
a	0	0	1	0	0	1
b	0	0	1	0	0	1
c	1	1	0	1	1	0
d	0	0	1	0	0	1
e	0	0	1	0	0	1
f	1	1	0	1	1	0

Not bipartite

- 4)
- a) K_n Not bipartite
 - b) C_n Not bipartite
 - c) W_n Bipartite
 - d) Q_n Bipartite

Section 9.3

1.

Adacency list

A: b, d

B: a, d, e

C: d, e

D: a, b, c

E: b, c

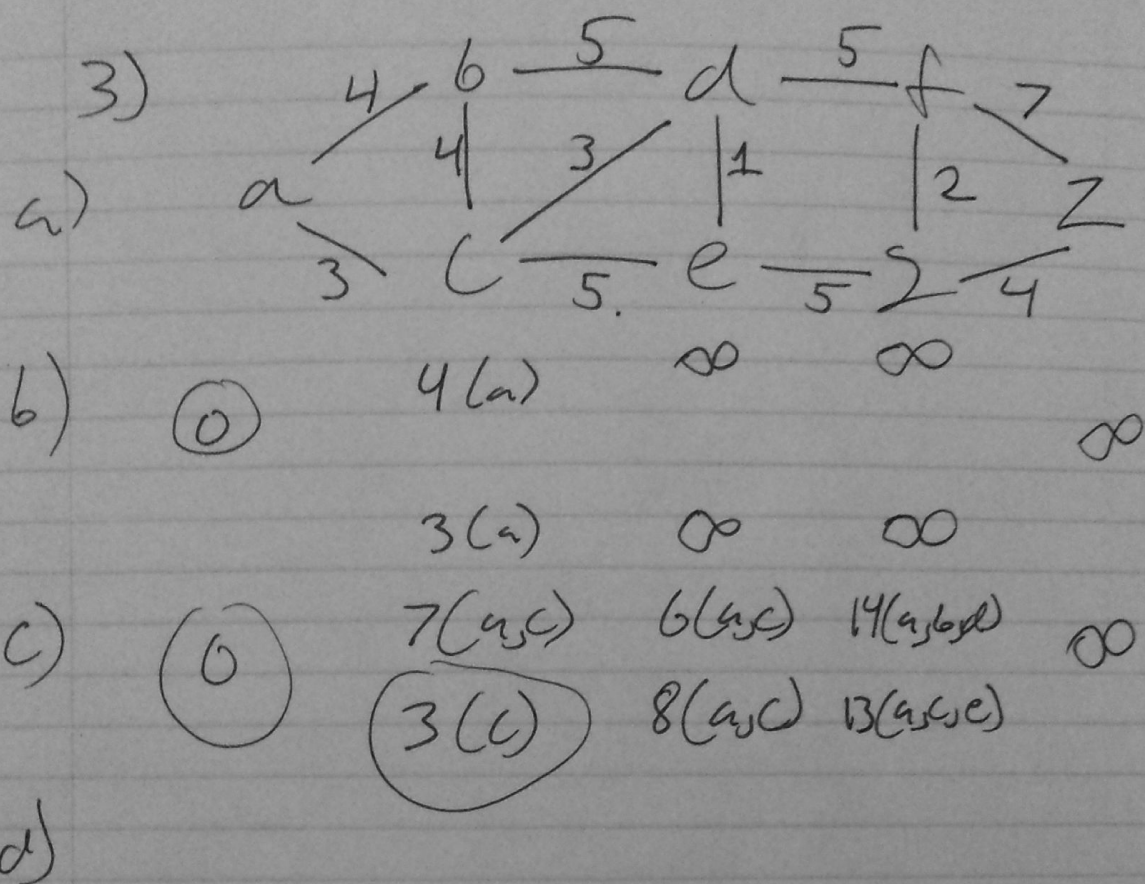
Adjacency Matrix

	a	b	c	d	e
a	0	1	0	1	0
b	1	0	0	1	1
c	0	0	0	1	1
d	1	1	1	0	0
e	0	1	1	0	0

Workshop 146

- 1)
- a) Euler circuit
 - b) None
 - c) Euler circuit
↓
path

- 2)
- a) Hamiltonian path
↓
circuit
 - b) Hamiltonian path
 - c) None



Shortest Path

a \rightarrow c \rightarrow d \rightarrow e \rightarrow g \rightarrow z

3 3 1 5 4

Total weight
16