

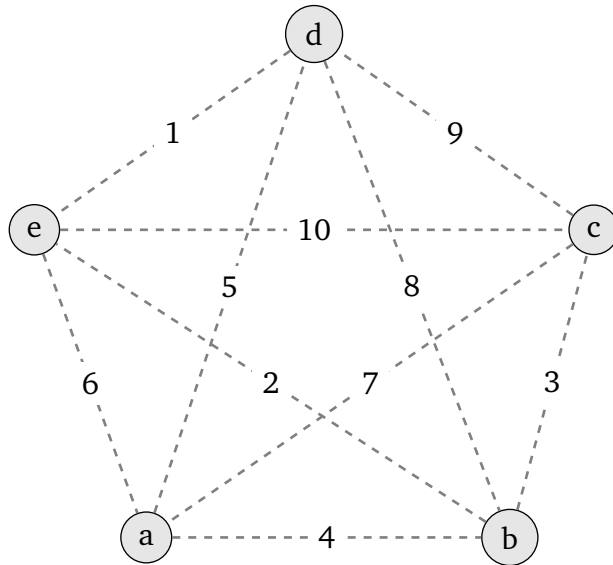
HAMILTONIAN CYCLE

TEXT: 12.7, 12.8, 12.9

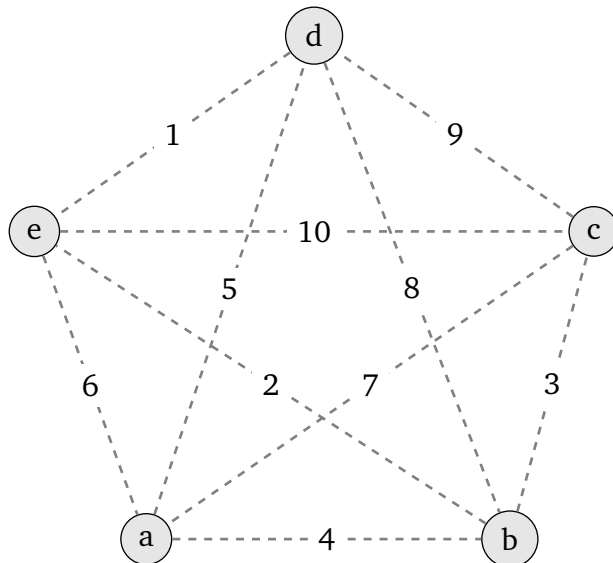
LAST NAME	FIRST NAME	DATE
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1 (8 points). Use the indicated algorithm to find a Hamiltonian cycle through the weighted graph. Compute the weight of your cycle. Be sure to indicate clearly the order in which the vertices/edges are traversed.

(a) Greedy algorithm starting with vertex a

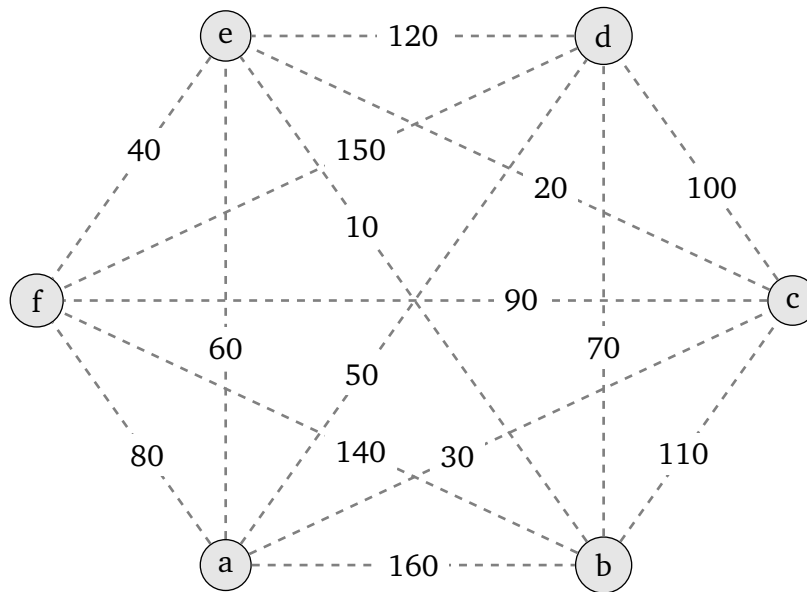


(b) Edge-picking algorithm

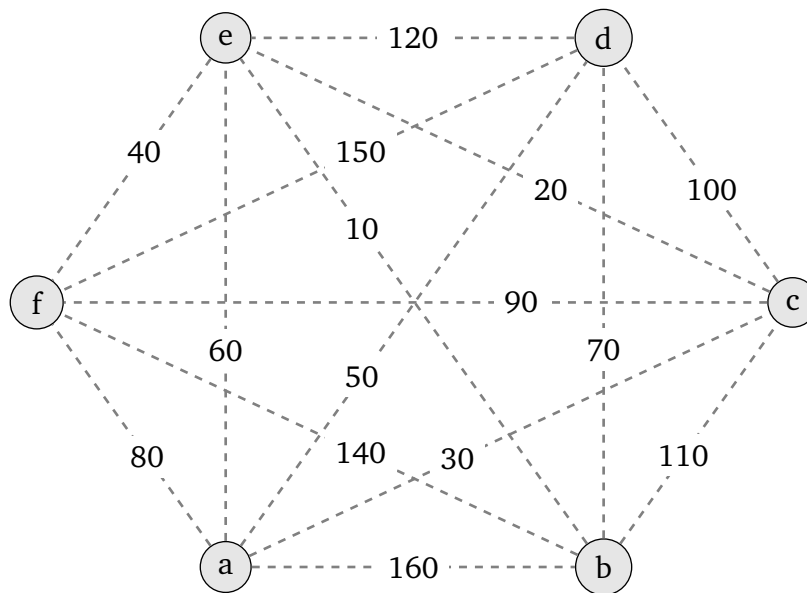


2. Use the indicated algorithm to find a Hamiltonian cycle through the weighted graph. Compute the weight of your cycle. Be sure to indicate clearly the order in which the vertices/edges are traversed.

(a) Greedy algorithm starting with vertex a



(b) Edge-picking algorithm

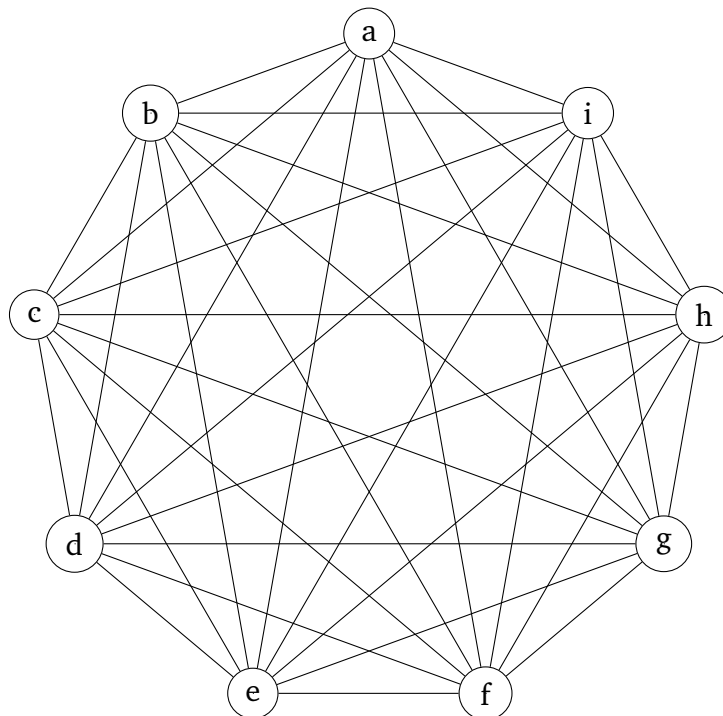


3 (4 points). Use the indicated algorithm to find a Hamiltonian cycle through the weighted graph. Compute the weight of your cycle. Be sure to indicate clearly the order in which the vertices/edges are traversed.

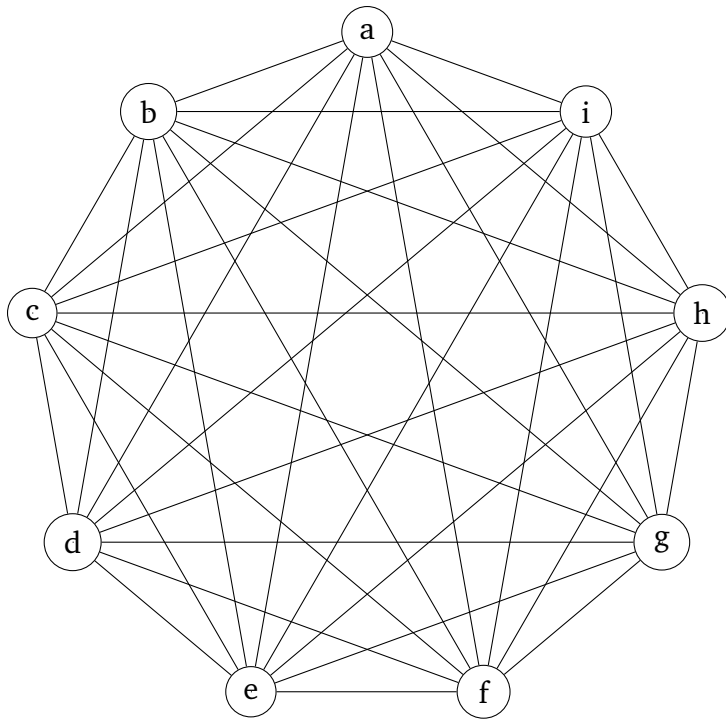
The weights are given in two different formats: ; and as a list sorted by edge weight, so that you can easily look up the lightest edge.

	a	b	c	d	e	f	g	h	i
a		15	31	6	16	13	28	7	14
b	15		27	29	2	24	19	25	20
c	31	27		21	26	30	4	32	33
d	6	29	21		8	34	1	22	35
e	16	2	26	8		9	36	3	11
f	13	24	30	34	9		23	17	18
g	28	19	4	1	36	23		5	10
h	7	25	32	22	3	17	5		12
i	14	20	33	35	11	18	10	12	

Use the Greedy algorithm starting with vertex *a*. The weights are given above as a two-way table, so that you can easily look up all edges corresponding to each vertex.



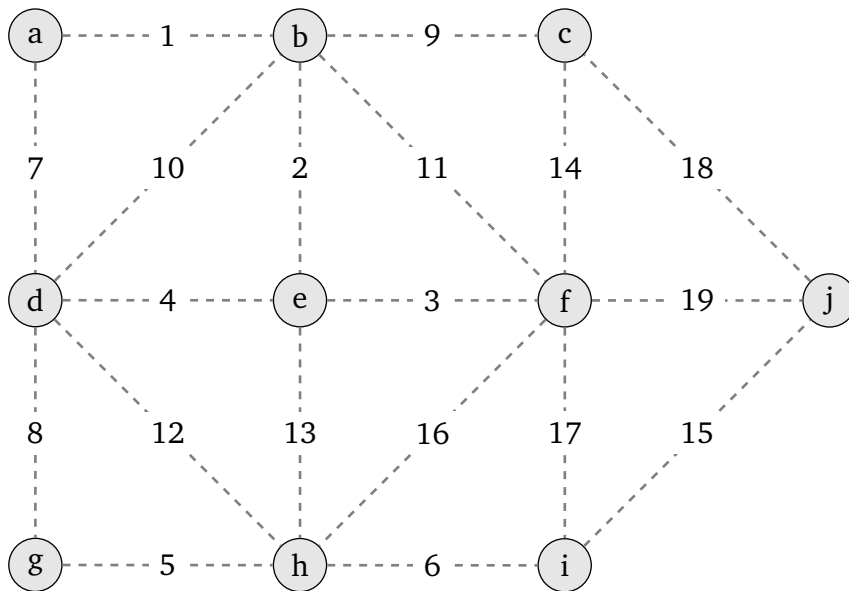
Use the Edge-picking algorithm. The weights are given on the right as a list sorted by edge weight, so that you can easily look up the next lightest edge.



edge weights:

dg	1
be	2
eh	3
cg	4
gh	5
ad	6
ah	7
de	8
ef	9
gi	10
ei	11
hi	12
af	13
ai	14
ab	15
ae	16
fh	17
fi	18
bg	19
bi	20
cd	21
dh	22
fg	23
bf	24
bh	25
ce	26
bc	27
ag	28
bd	29
cf	30
ac	31
ch	32
ci	33
df	34
di	35
eg	36

4. Use the Edge-picking algorithm starting to find a Hamiltonian cycle through the weighted graph. Compute the weight of your cycle. Be sure to indicate clearly the order in which the vertices/edges are traversed.



5. Make up a connected weighted graph without bridges where the Edge-picking algorithm fails to find a cycle.

6. Make up a connected weighted graph without bridges where the Greedy algorithm fails to find a cycle, no matter which vertex you start from.