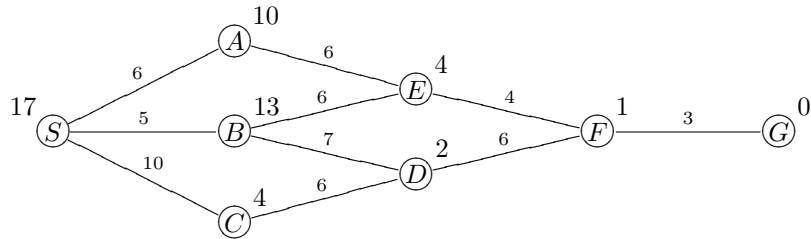
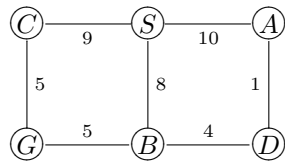


Session 2: Optimal Search

1. Perform the A^* algorithm on the following figure. Explicitly write down the queue at each step.

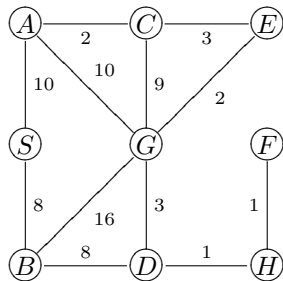


2. Perform IDA^* on the following figure.



	S	A	B	C	D	G
heuristic	0	0	4	3	0	0

3. Perform SMA^* on the following figure with enough memory to hold 4 nodes.



	S	A	B	C	D	E
heuristic	12	5	5	5	2	2
F	1	1	0			
H						
G						

4. Prove that if a heuristic function h satisfies the monotonicity restriction, then f is monotonously non-decreasing.
5. Prove or refute: If f is monotonously non-decreasing, then h is an admissible heuristic (i.e. h is an underestimate). Can an extra constraint on h change this?