**SOLUTION - Artificial Intelligence, A* Worksheet**

Given the following search space, start node (A), and goal node (G), calculate on this sheet of paper a path found using A*. Please show all work using the Open and Closed list boxes, crossing out items with a single strikethrough when deleting a node off of either list (once a line is crossed out, it doesn't exist in memory anymore). Under the "Order Deleted" column, put the number representing the order it was deleted, starting with 1 (and add an additional "- R" if it was replaced). Don't forget to mark parent pointers and all cost terms. Use the indicated cost along each node-to-node connection for g(x) and use the cost values in the table for the heuristic h(x).
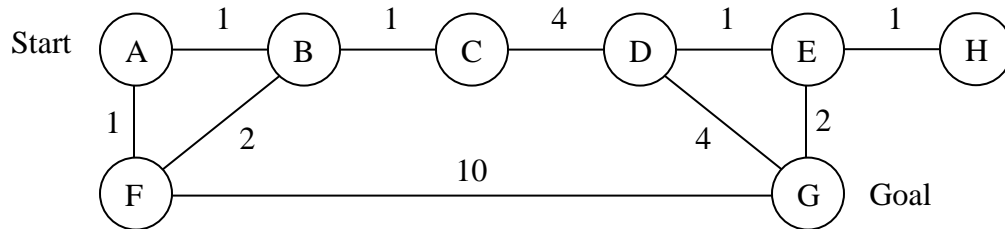
Values to be used for h(x). Heuristic cost to Goal node (G) from any given node:

A → G	B → G	C → G	D → G	E → G	F → G	H → G
4.1	3.1	2.2	1.4	1.0	4.0	1.4

Open List

Order Deleted	Node	Parent Node	g(x)	h(x)	f(x)
1	A	null	0	4.1	4.1
2	B	A	1.0	3.1	4.1
4	F	A	1.0	4.0	5.0
3	C	B	2.0	2.2	4.2
5	D	C	6.0	1.4	7.4
6-R	G	F	11.0	0.0	11.0
7	E	D	7.0	1.0	8.0
8-R	G	D	10.0	0.0	10.0
	H	E	8.0	1.4	9.4
9	G	E	9.0	0.0	9.0

Closed List

Order Deleted	Node	Parent Node	f(x)
	A	Null	4.1
	B	A	4.1
	C	B	4.2
	F	A	5.0
	D	C	7.4
	E	D	8.0

Final Path:
A→B→C→D→E→G