









Table for Answer 2

Uninformed Search		Heuristic 1		Heuristic 2		A Star Search	
<i>Path</i>	<i>No of Nodes Visited</i>	<i>Path</i>	<i>No of Nodes Visited</i>	<i>Path</i>	<i>No of Nodes Visited</i>	<i>Path</i>	<i>No of Nodes Visited</i>
2	10	7	7	2	7	2	7
3	32	12	12	3	12	3	12
4	64	14	14	4	14	4	14
5	136	17	17	5	17	5	17
8	658	91	91	8	24	8	31
10	1614	493	493	10	29	10	25
12	3376	582	582	12	34	12	43
14	12940	579	579	20	160	14	134
		1335	1335	34	189	16	331
				44	292	18	416
				50	307		

Table for Answer 3

Uninformed Search		Heuristic 1		Heuristic 2		A Star Search	
<i>Branching Factor</i>	<i>Depth</i>	<i>Branching Factor</i>	<i>Depth</i>	<i>Branching Factor</i>	<i>Depth</i>	<i>Branching Factor</i>	<i>Depth</i>
3.17	3	2.2	3	2.64	2	2.64	2
2.95	4	1.93	4	1.93	4	2.2	3
2.6	5	1.76	5	1.56	8	1.53	5
2.3	8	2.19	8	1.4	10	1.5	8
2.09	10	1.2	34	1.34	12	1.3	10
1.96	12	1.2	36	1.2	20	1.34	12
1.96	14	1.1	40	1.16	34	1.5	14
		1.16	42	1.13	44	1.4	16
		1.1	46	1.12	50	1.3	18
		1.13	58	1.1	70		

Time for all Search Types multiplied by ($\times 10^5$)

Initial State	BFS	DFS	Heuristic 1	Heuristic 2	A* Search
Easy	99	15799	100	99	0
Medium	1000	699	99	99	99
Hard	4199	1500000 Limit	209	299	300
Hardest	517599	1500000 Limit	181999	3299	24099

Test Cases	Initial State	BFS				DFS				Heuristic 1				Heuristic 2				A* Search			
		Result Found	Length of Path	Number of Nodes	Depth	Branching Factor	Result Found	Length of Path	Number of Nodes	Depth	Branching Factor	Result Found	Length of Path	Number of Nodes	Depth	Branching Factor	Result Found	Length of Path	Number of Nodes	Depth	Branching Factor
Easy																					
1	(2, "blank", 3, 1, 5, 6, 4, 7, 8)		5	160	5	2.75							5	15	5	1.71		5	15	5	1.71
2	(1, 2, 3, "blank", 4, 6, 7, 5, 8)		3	32	3	3.17		2847	8286	2947	1		3	12	3	2.2		3	12	3	2.2
3	(1, "blank", 3, 5, 2, 6, 4, 7, 8)		5	136	5	2.6							5	17	5	1.76		5	17	5	1.76
4	(1, 2, 3, 4, 8, 5, 7, "blank", 6)		3	34	3	3.2							3	12	3	2.2		3	12	3	2.2
Medium																					
5	(2, 8, 3, 1, "blank", 5, 4, 7, 6)		8	814	8	2.3							58	1335	58	1.13		8	31	8	1.53
6	(1, 2, 3, 4, 5, 6, "blank", 7, 8)		2	10	2	3.16		42	125	42	1.12		2	7	2	2.64		2	7	2	2.64
7	("blank", 2, 3, 1, 5, 6, 4, 7, 8)		4	76	4	2.95							4	12	4	1.86		4	12	4	1.86
8	(1, 3, "blank", 4, 2, 6, 7, 5, 8)		4	68	4	2.8							4	14	4	1.93		4	14	4	1.93
9	(1, 3, "blank", 4, 2, 5, 7, 8, 6)		4	64	4	2.8							4	14	4	1.93		4	14	4	1.93
Hard																					
10	("blank", 5, 3, 2, 1, 6, 4, 7, 8)		8	658	8	2.2							8	533	8	2.19		8	24	8	1.48
11	(5, 1, 3, 2, "blank", 6, 4, 7, 8)		8	900	8	2.3							36	582	36	1.2		8	36	8	1.56
12	(2, 3, 8, 1, 6, 5, 4, 7, "blank")		12	3376	12	1.96							34	493	34	1.2		12	34	12	1.34
13	(1, 2, 3, 5, "blank", 6, 4, 7, 8)		4	94	4	3.1							4	14	4	1.9		4	14	4	1.9
14	("blank", 3, 6, 2, 1, 5, 4, 7, 8)		10	1614	10	2.09							40	491	40	1.1		10	29	10	1.4
Hardest																					
15	(2, 6, 5, 4, "blank", 3, 7, 1, 8)		14	12940	12	1.96							46	1169	46	1.1		20	160	20	1.2
16	(3, 6, "blank", 5, 7, 8, 2, 1, 4)												22	91	22	1.2		70	1069	70	1.1
17	(1, 5, "blank", 2, 3, 8, 4, 6, 7)												42	420	420	1.15		44	292	22	1.13
18	(2, 5, 3, 4, "blank", 8, 6, 1, 7)		14	12846	14	1.96							26	2217	26	1.34		34	189	34	1.16
19	(3, 8, 5, 1, 6, 7, 4, 2, "blank")												42	579	42	1.16		50	307	40	1.12