

Transcripts:

Vertices=275, edges=641

Start=(1,20), goal=(20,20), vertices: 19 and 274

iter=1, frontier=0, popped=19 (1,20), depth=0, dist2goal=19.0

pushed 18 (1,19)

pushed 39 (2,20)

iter=2, frontier=1, popped=18 (1,19), depth=1, dist2goal=19.0

pushed 17 (1,18)

pushed 38 (2,19)

iter=3, frontier=2, popped=39 (2,20), depth=1, dist2goal=18.0

pushed 58 (3,20)

iter=4, frontier=2, popped=17 (1,18), depth=2, dist2goal=19.1

pushed 16 (1,17)

pushed 37 (2,18)

iter=5, frontier=3, popped=38 (2,19), depth=2, dist2goal=18.0

pushed 57 (3,19)

iter=6, frontier=3, popped=58 (3,20), depth=2, dist2goal=17.0

pushed 74 (4,20)

iter=7, frontier=3, popped=16 (1,17), depth=3, dist2goal=19.2

pushed 15 (1,16)

pushed 36 (2,17)

iter=8, frontier=4, popped=37 (2,18), depth=3, dist2goal=18.1

pushed 56 (3,18)

iter=9, frontier=4, popped=57 (3,19), depth=3, dist2goal=17.0

pushed 73 (4,19)

iter=10, frontier=4, popped=74 (4,20), depth=3, dist2goal=16.0

pushed 86 (5,20)

iter=11, frontier=4, popped=15 (1,16), depth=4, dist2goal=19.4

pushed 14 (1,15)

pushed 35 (2,16)

iter=12, frontier=5, popped=36 (2,17), depth=4, dist2goal=18.2

pushed 55 (3,17)

iter=13, frontier=5, popped=56 (3,18), depth=4, dist2goal=17.1

pushed 72 (4,18)

iter=14, frontier=5, popped=73 (4,19), depth=4, dist2goal=16.0

pushed 85 (5,19)

iter=15, frontier=5, popped=86 (5,20), depth=4, dist2goal=15.0

pushed 98 (6,20)

iter=16, frontier=5, popped=14 (1,15), depth=5, dist2goal=19.6

pushed 13 (1,14)

pushed 34 (2,15)

iter=17, frontier=6, popped=35 (2,16), depth=5, dist2goal=18.4

pushed 54 (3,16)

iter=18, frontier=6, popped=55 (3,17), depth=5, dist2goal=17.3

pushed 71 (4,17)

iter=19, frontier=6, popped=72 (4,18), depth=5, dist2goal=16.1

pushed 84 (5,18)
iter=20, frontier=6, popped=85 (5,19), depth=5, dist2goal=15.0
pushed 97 (6,19)
iter=21, frontier=6, popped=98 (6,20), depth=5, dist2goal=14.0
pushed 112 (7,20)
iter=22, frontier=6, popped=13 (1,14), depth=6, dist2goal=19.9
pushed 12 (1,13)
pushed 33 (2,14)
iter=23, frontier=7, popped=34 (2,15), depth=6, dist2goal=18.7
pushed 53 (3,15)
iter=24, frontier=7, popped=54 (3,16), depth=6, dist2goal=17.5
pushed 70 (4,16)
iter=25, frontier=7, popped=71 (4,17), depth=6, dist2goal=16.3
pushed 83 (5,17)
iter=26, frontier=7, popped=84 (5,18), depth=6, dist2goal=15.1
pushed 96 (6,18)
iter=27, frontier=7, popped=97 (6,19), depth=6, dist2goal=14.0
pushed 111 (7,19)
iter=28, frontier=7, popped=112 (7,20), depth=6, dist2goal=13.0
pushed 129 (8,20)
iter=29, frontier=7, popped=12 (1,13), depth=7, dist2goal=20.2
pushed 11 (1,12)
pushed 32 (2,13)
iter=30, frontier=8, popped=33 (2,14), depth=7, dist2goal=19.0
iter=31, frontier=7, popped=53 (3,15), depth=7, dist2goal=17.7
pushed 69 (4,15)
iter=32, frontier=7, popped=70 (4,16), depth=7, dist2goal=16.5
pushed 82 (5,16)
iter=33, frontier=7, popped=83 (5,17), depth=7, dist2goal=15.3
pushed 95 (6,17)
iter=34, frontier=7, popped=96 (6,18), depth=7, dist2goal=14.1
pushed 110 (7,18)
iter=35, frontier=7, popped=111 (7,19), depth=7, dist2goal=13.0
pushed 128 (8,19)
iter=36, frontier=7, popped=129 (8,20), depth=7, dist2goal=12.0
pushed 144 (9,20)
iter=37, frontier=7, popped=11 (1,12), depth=8, dist2goal=20.6
pushed 10 (1,11)
pushed 31 (2,12)
iter=38, frontier=8, popped=32 (2,13), depth=8, dist2goal=19.3
pushed 52 (3,13)
iter=39, frontier=8, popped=69 (4,15), depth=8, dist2goal=16.8
pushed 81 (5,15)
iter=40, frontier=8, popped=82 (5,16), depth=8, dist2goal=15.5
pushed 94 (6,16)
iter=41, frontier=8, popped=95 (6,17), depth=8, dist2goal=14.3
pushed 109 (7,17)
iter=42, frontier=8, popped=110 (7,18), depth=8, dist2goal=13.2
pushed 127 (8,18)

iter=43, frontier=8, popped=128 (8,19), depth=8, dist2goal=12.0
pushed 143 (9,19)
iter=44, frontier=8, popped=144 (9,20), depth=8, dist2goal=11.0
pushed 149 (10,20)
iter=45, frontier=8, popped=10 (1,11), depth=9, dist2goal=21.0
pushed 9 (1,10)
pushed 30 (2,11)
iter=46, frontier=9, popped=31 (2,12), depth=9, dist2goal=19.7
pushed 51 (3,12)
iter=47, frontier=9, popped=52 (3,13), depth=9, dist2goal=18.4
pushed 68 (4,10)
iter=48, frontier=9, popped=81 (5,15), depth=9, dist2goal=15.8
pushed 80 (5,14)
pushed 93 (6,15)
iter=49, frontier=10, popped=94 (6,16), depth=9, dist2goal=14.6
pushed 108 (7,16)
iter=50, frontier=10, popped=109 (7,17), depth=9, dist2goal=13.3
pushed 126 (8,17)
iter=51, frontier=10, popped=127 (8,18), depth=9, dist2goal=12.2
pushed 148 (10,19)
pushed 153 (11,19)
iter=52, frontier=11, popped=143 (9,19), depth=9, dist2goal=11.0
iter=53, frontier=10, popped=149 (10,20), depth=9, dist2goal=10.0
pushed 154 (11,20)
iter=54, frontier=10, popped=9 (1,10), depth=10, dist2goal=21.5
pushed 8 (1,9)
pushed 29 (2,10)
iter=55, frontier=11, popped=30 (2,11), depth=10, dist2goal=20.1
pushed 50 (3,11)
iter=56, frontier=11, popped=51 (3,12), depth=10, dist2goal=18.8
iter=57, frontier=10, popped=68 (4,10), depth=10, dist2goal=18.9
pushed 67 (4,9)
pushed 49 (3,10)
pushed 48 (3,9)
iter=58, frontier=12, popped=80 (5,14), depth=10, dist2goal=16.2
pushed 79 (5,13)
pushed 92 (6,14)
iter=59, frontier=13, popped=93 (6,15), depth=10, dist2goal=14.9
pushed 107 (7,15)
iter=60, frontier=13, popped=108 (7,16), depth=10, dist2goal=13.6
pushed 125 (8,16)
iter=61, frontier=13, popped=126 (8,17), depth=10, dist2goal=12.4
iter=62, frontier=12, popped=148 (10,19), depth=10, dist2goal=10.0
iter=63, frontier=11, popped=153 (11,19), depth=10, dist2goal=9.1
pushed 158 (12,19)
pushed 159 (12,20)
iter=64, frontier=12, popped=154 (11,20), depth=10, dist2goal=9.0
iter=65, frontier=11, popped=8 (1,9), depth=11, dist2goal=22.0
pushed 7 (1,8)

pushed 28 (2,9)
iter=66, frontier=12, popped=29 (2,10), depth=11, dist2goal=20.6
iter=67, frontier=11, popped=50 (3,11), depth=11, dist2goal=19.2
iter=68, frontier=10, popped=67 (4,9), depth=11, dist2goal=19.4
pushed 66 (4,8)
pushed 47 (3,8)
iter=69, frontier=11, popped=49 (3,10), depth=11, dist2goal=19.7
iter=70, frontier=10, popped=48 (3,9), depth=11, dist2goal=20.2
pushed 27 (2,8)
iter=71, frontier=10, popped=79 (5,13), depth=11, dist2goal=16.6
pushed 91 (6,13)
iter=72, frontier=10, popped=92 (6,14), depth=11, dist2goal=15.2
iter=73, frontier=9, popped=107 (7,15), depth=11, dist2goal=13.9
pushed 124 (8,15)
iter=74, frontier=9, popped=125 (8,16), depth=11, dist2goal=12.6
iter=75, frontier=8, popped=158 (12,19), depth=11, dist2goal=8.1
pushed 171 (13,19)
pushed 172 (13,20)
iter=76, frontier=9, popped=159 (12,20), depth=11, dist2goal=8.0
iter=77, frontier=8, popped=7 (1,8), depth=12, dist2goal=22.5
pushed 6 (1,7)
iter=78, frontier=8, popped=28 (2,9), depth=12, dist2goal=21.1
iter=79, frontier=7, popped=66 (4,8), depth=12, dist2goal=20.0
pushed 65 (4,7)
pushed 78 (5,8)
pushed 46 (3,7)
iter=80, frontier=9, popped=47 (3,8), depth=12, dist2goal=20.8
pushed 26 (2,7)
iter=81, frontier=9, popped=27 (2,8), depth=12, dist2goal=21.6
iter=82, frontier=8, popped=91 (6,13), depth=12, dist2goal=15.7
iter=83, frontier=7, popped=124 (8,15), depth=12, dist2goal=13.0
pushed 142 (9,15)
iter=84, frontier=7, popped=171 (13,19), depth=12, dist2goal=7.1
pushed 183 (14,19)
pushed 182 (14,18)
pushed 184 (14,20)
pushed 181 (14,17)
iter=85, frontier=10, popped=172 (13,20), depth=12, dist2goal=7.0
iter=86, frontier=9, popped=6 (1,7), depth=13, dist2goal=23.0
pushed 5 (1,6)
iter=87, frontier=9, popped=65 (4,7), depth=13, dist2goal=20.6
pushed 64 (4,6)
pushed 45 (3,6)
iter=88, frontier=10, popped=78 (5,8), depth=13, dist2goal=19.2
pushed 90 (6,8)
iter=89, frontier=10, popped=46 (3,7), depth=13, dist2goal=21.4
pushed 25 (2,6)
iter=90, frontier=10, popped=26 (2,7), depth=13, dist2goal=22.2
iter=91, frontier=9, popped=142 (9,15), depth=13, dist2goal=12.1

pushed 141 (9,14)
iter=92, frontier=9, popped=183 (14,19), depth=13, dist2goal=6.1
pushed 196 (15,19)
pushed 197 (15,20)
iter=93, frontier=10, popped=182 (14,18), depth=13, dist2goal=6.3
pushed 195 (15,18)
iter=94, frontier=10, popped=184 (14,20), depth=13, dist2goal=6.0
iter=95, frontier=9, popped=181 (14,17), depth=13, dist2goal=6.7
pushed 180 (14,16)
pushed 194 (15,17)
iter=96, frontier=10, popped=5 (1,6), depth=14, dist2goal=23.6
pushed 4 (1,5)
iter=97, frontier=10, popped=64 (4,6), depth=14, dist2goal=21.3
pushed 63 (4,5)
pushed 44 (3,5)
iter=98, frontier=11, popped=45 (3,6), depth=14, dist2goal=22.0
pushed 24 (2,5)
iter=99, frontier=11, popped=90 (6,8), depth=14, dist2goal=18.4
pushed 104 (7,8)
iter=100, frontier=11, popped=25 (2,6), depth=14, dist2goal=22.8
iter=101, frontier=10, popped=141 (9,14), depth=14, dist2goal=12.5
pushed 140 (9,13)
iter=102, frontier=10, popped=196 (15,19), depth=14, dist2goal=5.1
pushed 209 (16,19)
pushed 210 (16,20)
iter=103, frontier=11, popped=197 (15,20), depth=14, dist2goal=5.0
iter=104, frontier=10, popped=195 (15,18), depth=14, dist2goal=5.4
pushed 208 (16,18)
iter=105, frontier=10, popped=180 (14,16), depth=14, dist2goal=7.2
pushed 179 (14,15)
pushed 193 (15,16)
iter=106, frontier=11, popped=194 (15,17), depth=14, dist2goal=5.8
pushed 207 (16,17)
iter=107, frontier=11, popped=4 (1,5), depth=15, dist2goal=24.2
pushed 3 (1,4)
iter=108, frontier=11, popped=63 (4,5), depth=15, dist2goal=21.9
pushed 62 (4,4)
pushed 43 (3,4)
iter=109, frontier=12, popped=44 (3,5), depth=15, dist2goal=22.7
pushed 23 (2,4)
iter=110, frontier=12, popped=24 (2,5), depth=15, dist2goal=23.4
iter=111, frontier=11, popped=104 (7,8), depth=15, dist2goal=17.7
pushed 103 (7,7)
pushed 105 (7,9)
pushed 118 (8,8)
pushed 119 (8,9)
iter=112, frontier=14, popped=140 (9,13), depth=15, dist2goal=13.0
pushed 139 (9,12)
pushed 123 (8,13)

pushed 122 (8,12)
iter=113, frontier=16, popped=209 (16,19), depth=15, dist2goal=4.1
pushed 221 (17,19)
pushed 222 (17,20)
iter=114, frontier=17, popped=210 (16,20), depth=15, dist2goal=4.0
iter=115, frontier=16, popped=208 (16,18), depth=15, dist2goal=4.5
pushed 220 (17,18)
iter=116, frontier=16, popped=179 (14,15), depth=15, dist2goal=7.8
pushed 170 (13,15)
pushed 192 (15,15)
iter=117, frontier=17, popped=193 (15,16), depth=15, dist2goal=6.4
pushed 206 (16,16)
iter=118, frontier=17, popped=207 (16,17), depth=15, dist2goal=5.0
pushed 219 (17,17)
iter=119, frontier=17, popped=3 (1,4), depth=16, dist2goal=24.8
pushed 2 (1,3)
iter=120, frontier=17, popped=62 (4,4), depth=16, dist2goal=22.6
pushed 61 (4,3)
pushed 42 (3,3)
iter=121, frontier=18, popped=43 (3,4), depth=16, dist2goal=23.3
pushed 22 (2,3)
iter=122, frontier=18, popped=23 (2,4), depth=16, dist2goal=24.1
iter=123, frontier=17, popped=103 (7,7), depth=16, dist2goal=18.4
pushed 102 (7,6)
pushed 117 (8,7)
iter=124, frontier=18, popped=105 (7,9), depth=16, dist2goal=17.0
pushed 106 (7,10)
pushed 120 (8,10)
iter=125, frontier=19, popped=118 (8,8), depth=16, dist2goal=17.0
pushed 135 (9,8)
pushed 136 (9,9)
iter=126, frontier=20, popped=119 (8,9), depth=16, dist2goal=16.3
pushed 137 (9,10)
iter=127, frontier=20, popped=139 (9,12), depth=16, dist2goal=13.6
pushed 138 (9,11)
pushed 121 (8,11)
iter=128, frontier=21, popped=123 (8,13), depth=16, dist2goal=13.9
iter=129, frontier=20, popped=122 (8,12), depth=16, dist2goal=14.4
iter=130, frontier=19, popped=221 (17,19), depth=16, dist2goal=3.2
pushed 235 (18,19)
pushed 236 (18,20)
iter=131, frontier=20, popped=222 (17,20), depth=16, dist2goal=3.0
iter=132, frontier=19, popped=220 (17,18), depth=16, dist2goal=3.6
pushed 234 (18,18)
iter=133, frontier=19, popped=170 (13,15), depth=16, dist2goal=8.6
iter=134, frontier=18, popped=192 (15,15), depth=16, dist2goal=7.1
pushed 191 (15,14)
pushed 205 (16,15)
iter=135, frontier=19, popped=206 (16,16), depth=16, dist2goal=5.7

pushed 218 (17,16)
iter=136, frontier=19, popped=219 (17,17), depth=16, dist2goal=4.2
pushed 233 (18,17)
iter=137, frontier=19, popped=2 (1,3), depth=17, dist2goal=25.5
pushed 1 (1,2)
iter=138, frontier=19, popped=61 (4,3), depth=17, dist2goal=23.3
pushed 60 (4,2)
pushed 77 (5,3)
pushed 41 (3,2)
iter=139, frontier=21, popped=42 (3,3), depth=17, dist2goal=24.0
pushed 21 (2,2)
iter=140, frontier=21, popped=22 (2,3), depth=17, dist2goal=24.8
iter=141, frontier=20, popped=102 (7,6), depth=17, dist2goal=19.1
pushed 116 (8,6)
iter=142, frontier=20, popped=117 (8,7), depth=17, dist2goal=17.7
pushed 134 (9,7)
iter=143, frontier=20, popped=106 (7,10), depth=17, dist2goal=16.4
iter=144, frontier=19, popped=120 (8,10), depth=17, dist2goal=15.6
iter=145, frontier=18, popped=135 (9,8), depth=17, dist2goal=16.3
iter=146, frontier=17, popped=136 (9,9), depth=17, dist2goal=15.6
iter=147, frontier=16, popped=137 (9,10), depth=17, dist2goal=14.9
iter=148, frontier=15, popped=138 (9,11), depth=17, dist2goal=14.2
iter=149, frontier=14, popped=121 (8,11), depth=17, dist2goal=15.0
iter=150, frontier=13, popped=235 (18,19), depth=17, dist2goal=2.2
pushed 253 (19,19)
pushed 254 (19,20)
iter=151, frontier=14, popped=236 (18,20), depth=17, dist2goal=2.0
iter=152, frontier=13, popped=234 (18,18), depth=17, dist2goal=2.8
pushed 252 (19,18)
iter=153, frontier=13, popped=191 (15,14), depth=17, dist2goal=7.8
pushed 190 (15,13)
pushed 204 (16,14)
iter=154, frontier=14, popped=205 (16,15), depth=17, dist2goal=6.4
pushed 217 (17,15)
iter=155, frontier=14, popped=218 (17,16), depth=17, dist2goal=5.0
pushed 232 (18,16)
iter=156, frontier=14, popped=233 (18,17), depth=17, dist2goal=3.6
pushed 251 (19,17)
iter=157, frontier=14, popped=1 (1,2), depth=18, dist2goal=26.2
pushed 0 (1,1)
iter=158, frontier=14, popped=60 (4,2), depth=18, dist2goal=24.1
pushed 59 (4,1)
pushed 76 (5,2)
pushed 40 (3,1)
iter=159, frontier=16, popped=77 (5,3), depth=18, dist2goal=22.7
pushed 89 (6,3)
iter=160, frontier=16, popped=41 (3,2), depth=18, dist2goal=24.8
pushed 20 (2,1)
iter=161, frontier=16, popped=21 (2,2), depth=18, dist2goal=25.5

iter=162, frontier=15, popped=116 (8,6), depth=18, dist2goal=18.4
pushed 133 (9,6)
iter=163, frontier=15, popped=134 (9,7), depth=18, dist2goal=17.0
iter=164, frontier=14, popped=253 (19,19), depth=18, dist2goal=1.4
pushed 273 (20,19)
pushed 274 (20,20)
iter=165, frontier=15, popped=254 (19,20), depth=18, dist2goal=1.0
iter=166, frontier=14, popped=252 (19,18), depth=18, dist2goal=2.2
pushed 272 (20,18)
iter=167, frontier=14, popped=190 (15,13), depth=18, dist2goal=8.6
pushed 189 (15,12)
iter=168, frontier=14, popped=204 (16,14), depth=18, dist2goal=7.2
pushed 216 (17,13)
pushed 215 (17,12)
pushed 231 (18,15)
iter=169, frontier=16, popped=217 (17,15), depth=18, dist2goal=5.8
iter=170, frontier=15, popped=232 (18,16), depth=18, dist2goal=4.5
pushed 250 (19,16)
iter=171, frontier=15, popped=251 (19,17), depth=18, dist2goal=3.2
pushed 271 (20,17)
iter=172, frontier=15, popped=0 (1,1), depth=19, dist2goal=26.9
iter=173, frontier=14, popped=59 (4,1), depth=19, dist2goal=24.8
pushed 75 (5,1)
iter=174, frontier=14, popped=76 (5,2), depth=19, dist2goal=23.4
pushed 88 (6,2)
iter=175, frontier=14, popped=40 (3,1), depth=19, dist2goal=25.5
iter=176, frontier=13, popped=89 (6,3), depth=19, dist2goal=22.0
pushed 101 (7,3)
iter=177, frontier=13, popped=20 (2,1), depth=19, dist2goal=26.2
iter=178, frontier=12, popped=133 (9,6), depth=19, dist2goal=17.8
iter=179, frontier=11, popped=273 (20,19), depth=19, dist2goal=1.0
iter=180, frontier=10, popped=274 (20,20), depth=19, dist2goal=0.0

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Solution path:

1 20
1 19
1 18
2 18
3 18
4 18
5 18
6 18
7 18
8 18
11 19
12 19
13 19
14 19
15 19

16 19
17 19
18 19
19 19
20 20
Search algorithm = BFS
Total iterations = 180
Max frontier size = 22
Vertices visited = 189/275
Path length = 19

Vertices=275, edges=641
Start=(1,20), goal=(20,20), vertices: 19 and 274
iter=1, frontier=0, popped=19 (1,20), depth=0, dist2goal=19.0
pushed 18 (1,19)
pushed 39 (2,20)
iter=2, frontier=1, popped=39 (2,20), depth=1, dist2goal=18.0
pushed 38 (2,19)
pushed 58 (3,20)
iter=3, frontier=2, popped=58 (3,20), depth=2, dist2goal=17.0
pushed 57 (3,19)
pushed 74 (4,20)
iter=4, frontier=3, popped=74 (4,20), depth=3, dist2goal=16.0
pushed 73 (4,19)
pushed 86 (5,20)
iter=5, frontier=4, popped=86 (5,20), depth=4, dist2goal=15.0
pushed 85 (5,19)
pushed 98 (6,20)
iter=6, frontier=5, popped=98 (6,20), depth=5, dist2goal=14.0
pushed 97 (6,19)
pushed 112 (7,20)
iter=7, frontier=6, popped=112 (7,20), depth=6, dist2goal=13.0

pushed 111 (7,19)
pushed 129 (8,20)
iter=8, frontier=7, popped=129 (8,20), depth=7, dist2goal=12.0
pushed 128 (8,19)
pushed 144 (9,20)
iter=9, frontier=8, popped=144 (9,20), depth=8, dist2goal=11.0
pushed 143 (9,19)
pushed 149 (10,20)
iter=10, frontier=9, popped=149 (10,20), depth=9, dist2goal=10.0
pushed 148 (10,19)
pushed 154 (11,20)
iter=11, frontier=10, popped=154 (11,20), depth=10, dist2goal=9.0
pushed 153 (11,19)
pushed 159 (12,20)
iter=12, frontier=11, popped=159 (12,20), depth=11, dist2goal=8.0
pushed 158 (12,19)
pushed 172 (13,20)
iter=13, frontier=12, popped=172 (13,20), depth=12, dist2goal=7.0
pushed 171 (13,19)
pushed 184 (14,20)
iter=14, frontier=13, popped=184 (14,20), depth=13, dist2goal=6.0
pushed 183 (14,19)
pushed 197 (15,20)
iter=15, frontier=14, popped=197 (15,20), depth=14, dist2goal=5.0
pushed 196 (15,19)
pushed 210 (16,20)
iter=16, frontier=15, popped=210 (16,20), depth=15, dist2goal=4.0
pushed 209 (16,19)
pushed 222 (17,20)
iter=17, frontier=16, popped=222 (17,20), depth=16, dist2goal=3.0
pushed 221 (17,19)
pushed 236 (18,20)
iter=18, frontier=17, popped=236 (18,20), depth=17, dist2goal=2.0
pushed 235 (18,19)
pushed 254 (19,20)
iter=19, frontier=18, popped=254 (19,20), depth=18, dist2goal=1.0
pushed 253 (19,19)
pushed 274 (20,20)

=====

Solution path:

1 20
2 20
3 20
4 20
5 20
6 20
7 20
8 20
9 20

10 20
11 20
12 20
13 20
14 20
15 20
16 20
17 20
18 20
19 20
20 20

Search algorithm = DFS
Total iterations = 19
Max frontier size = 20
Vertices visited = 38/275
Path length = 19

Vertices=275, edges=641

Start=(1,20), goal=(20,20), vertices: 19 and 274
iter=1, frontier=0, popped=19 (1,20), depth=0, dist2goal=19.0
pushed 18 (1,19)
pushed 39 (2,20)
iter=2, frontier=1, popped=39 (2,20), depth=1, dist2goal=18.0
pushed 38 (2,19)
pushed 58 (3,20)
iter=3, frontier=2, popped=58 (3,20), depth=2, dist2goal=17.0
pushed 57 (3,19)
pushed 74 (4,20)
iter=4, frontier=3, popped=74 (4,20), depth=3, dist2goal=16.0
pushed 73 (4,19)
pushed 86 (5,20)
iter=5, frontier=4, popped=86 (5,20), depth=4, dist2goal=15.0
pushed 85 (5,19)
pushed 98 (6,20)
iter=6, frontier=5, popped=98 (6,20), depth=5, dist2goal=14.0
pushed 97 (6,19)
pushed 112 (7,20)
iter=7, frontier=6, popped=112 (7,20), depth=6, dist2goal=13.0

pushed 111 (7,19)
pushed 129 (8,20)
iter=8, frontier=7, popped=129 (8,20), depth=7, dist2goal=12.0
pushed 128 (8,19)
pushed 144 (9,20)
iter=9, frontier=8, popped=144 (9,20), depth=8, dist2goal=11.0
pushed 143 (9,19)
pushed 149 (10,20)
iter=10, frontier=9, popped=149 (10,20), depth=9, dist2goal=10.0
pushed 148 (10,19)
pushed 154 (11,20)
iter=11, frontier=10, popped=154 (11,20), depth=10, dist2goal=9.0
pushed 153 (11,19)
pushed 159 (12,20)
iter=12, frontier=11, popped=159 (12,20), depth=11, dist2goal=8.0
pushed 158 (12,19)
pushed 172 (13,20)
iter=13, frontier=12, popped=172 (13,20), depth=12, dist2goal=7.0
pushed 171 (13,19)
pushed 184 (14,20)
iter=14, frontier=13, popped=184 (14,20), depth=13, dist2goal=6.0
pushed 183 (14,19)
pushed 197 (15,20)
iter=15, frontier=14, popped=197 (15,20), depth=14, dist2goal=5.0
pushed 196 (15,19)
pushed 210 (16,20)
iter=16, frontier=15, popped=210 (16,20), depth=15, dist2goal=4.0
pushed 209 (16,19)
pushed 222 (17,20)
iter=17, frontier=16, popped=222 (17,20), depth=16, dist2goal=3.0
pushed 221 (17,19)
pushed 236 (18,20)
iter=18, frontier=17, popped=236 (18,20), depth=17, dist2goal=2.0
pushed 235 (18,19)
pushed 254 (19,20)
iter=19, frontier=18, popped=254 (19,20), depth=18, dist2goal=1.0
pushed 253 (19,19)
pushed 274 (20,20)

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Solution path:

1 20
2 20
3 20
4 20
5 20
6 20
7 20
8 20
9 20

10 20
11 20
12 20
13 20
14 20
15 20
16 20
17 20
18 20
19 20
20 20

Search algorithm = GBFS

Total iterations = 19

Max frontier size = 20

Vertices visited = 38/275

Path length = 19

Vertices=275, edges=641

Start=(1,20), goal=(20,20), vertices: 19 and 274

iter=1, frontier=0, popped=19 (1,20), depth=0, dist2goal=19.0

pushed 18 (1,19)

pushed 39 (2,20)

iter=2, frontier=1, popped=39 (2,20), depth=1, dist2goal=18.0

pushed 38 (2,19)

pushed 58 (3,20)

iter=3, frontier=2, popped=58 (3,20), depth=2, dist2goal=17.0

pushed 57 (3,19)

pushed 74 (4,20)

iter=4, frontier=3, popped=74 (4,20), depth=3, dist2goal=16.0

pushed 73 (4,19)

pushed 86 (5,20)

iter=5, frontier=4, popped=86 (5,20), depth=4, dist2goal=15.0

pushed 85 (5,19)

pushed 98 (6,20)

iter=6, frontier=5, popped=98 (6,20), depth=5, dist2goal=14.0

pushed 97 (6,19)

pushed 112 (7,20)

iter=7, frontier=6, popped=112 (7,20), depth=6, dist2goal=13.0

pushed 111 (7,19)
pushed 129 (8,20)
iter=8, frontier=7, popped=129 (8,20), depth=7, dist2goal=12.0
pushed 128 (8,19)
pushed 144 (9,20)
iter=9, frontier=8, popped=144 (9,20), depth=8, dist2goal=11.0
pushed 143 (9,19)
pushed 149 (10,20)
iter=10, frontier=9, popped=149 (10,20), depth=9, dist2goal=10.0
pushed 148 (10,19)
pushed 154 (11,20)
iter=11, frontier=10, popped=154 (11,20), depth=10, dist2goal=9.0
pushed 153 (11,19)
pushed 159 (12,20)
iter=12, frontier=11, popped=159 (12,20), depth=11, dist2goal=8.0
pushed 158 (12,19)
pushed 172 (13,20)
iter=13, frontier=12, popped=172 (13,20), depth=12, dist2goal=7.0
pushed 171 (13,19)
pushed 184 (14,20)
iter=14, frontier=13, popped=184 (14,20), depth=13, dist2goal=6.0
pushed 183 (14,19)
pushed 197 (15,20)
iter=15, frontier=14, popped=197 (15,20), depth=14, dist2goal=5.0
pushed 196 (15,19)
pushed 210 (16,20)
iter=16, frontier=15, popped=210 (16,20), depth=15, dist2goal=4.0
pushed 209 (16,19)
pushed 222 (17,20)
iter=17, frontier=16, popped=222 (17,20), depth=16, dist2goal=3.0
pushed 221 (17,19)
pushed 236 (18,20)
iter=18, frontier=17, popped=236 (18,20), depth=17, dist2goal=2.0
pushed 235 (18,19)
pushed 254 (19,20)
iter=19, frontier=18, popped=254 (19,20), depth=18, dist2goal=1.0
pushed 253 (19,19)
pushed 274 (20,20)

=====

Solution path:

1 20
2 20
3 20
4 20
5 20
6 20
7 20
8 20
9 20

10 20
11 20
12 20
13 20
14 20
15 20
16 20
17 20
18 20
19 20
20 20

Search algorithm = ASTAR

Total iterations = 19

Max frontier size = 20

Vertices visited = 38/275

Path length = 19

Vertices=275, edges=641

Start=(1,1), goal=(20,20), vertices: 0 and 274

iter=1, frontier=0, popped=0 (1,1), depth=0, dist2goal=26.9

pushed 1 (1,2)

pushed 20 (2,1)

pushed 21 (2,2)

iter=2, frontier=2, popped=1 (1,2), depth=1, dist2goal=26.2

pushed 2 (1,3)

pushed 22 (2,3)

iter=3, frontier=3, popped=20 (2,1), depth=1, dist2goal=26.2

pushed 40 (3,1)

pushed 41 (3,2)

iter=4, frontier=4, popped=21 (2,2), depth=1, dist2goal=25.5

pushed 42 (3,3)

iter=5, frontier=4, popped=2 (1,3), depth=2, dist2goal=25.5

pushed 3 (1,4)

pushed 23 (2,4)

iter=6, frontier=5, popped=22 (2,3), depth=2, dist2goal=24.8

pushed 43 (3,4)

iter=7, frontier=5, popped=40 (3,1), depth=2, dist2goal=25.5

pushed 59 (4,1)

pushed 60 (4,2)

iter=8, frontier=6, popped=41 (3,2), depth=2, dist2goal=24.8
pushed 61 (4,3)
iter=9, frontier=6, popped=42 (3,3), depth=2, dist2goal=24.0
pushed 62 (4,4)
iter=10, frontier=6, popped=3 (1,4), depth=3, dist2goal=24.8
pushed 4 (1,5)
pushed 24 (2,5)
iter=11, frontier=7, popped=23 (2,4), depth=3, dist2goal=24.1
pushed 44 (3,5)
iter=12, frontier=7, popped=43 (3,4), depth=3, dist2goal=23.3
pushed 63 (4,5)
iter=13, frontier=7, popped=59 (4,1), depth=3, dist2goal=24.8
pushed 75 (5,1)
pushed 76 (5,2)
iter=14, frontier=8, popped=60 (4,2), depth=3, dist2goal=24.1
pushed 77 (5,3)
iter=15, frontier=8, popped=61 (4,3), depth=3, dist2goal=23.3
iter=16, frontier=7, popped=62 (4,4), depth=3, dist2goal=22.6
iter=17, frontier=6, popped=4 (1,5), depth=4, dist2goal=24.2
pushed 5 (1,6)
pushed 25 (2,6)
iter=18, frontier=7, popped=24 (2,5), depth=4, dist2goal=23.4
pushed 45 (3,6)
iter=19, frontier=7, popped=44 (3,5), depth=4, dist2goal=22.7
pushed 64 (4,6)
iter=20, frontier=7, popped=63 (4,5), depth=4, dist2goal=21.9
iter=21, frontier=6, popped=75 (5,1), depth=4, dist2goal=24.2
pushed 87 (6,1)
pushed 88 (6,2)
iter=22, frontier=7, popped=76 (5,2), depth=4, dist2goal=23.4
pushed 89 (6,3)
iter=23, frontier=7, popped=77 (5,3), depth=4, dist2goal=22.7
iter=24, frontier=6, popped=5 (1,6), depth=5, dist2goal=23.6
pushed 6 (1,7)
pushed 26 (2,7)
iter=25, frontier=7, popped=25 (2,6), depth=5, dist2goal=22.8
pushed 46 (3,7)
iter=26, frontier=7, popped=45 (3,6), depth=5, dist2goal=22.0
pushed 65 (4,7)
iter=27, frontier=7, popped=64 (4,6), depth=5, dist2goal=21.3
iter=28, frontier=6, popped=87 (6,1), depth=5, dist2goal=23.6
pushed 99 (7,1)
pushed 100 (7,2)
iter=29, frontier=7, popped=88 (6,2), depth=5, dist2goal=22.8
pushed 101 (7,3)
iter=30, frontier=7, popped=89 (6,3), depth=5, dist2goal=22.0
iter=31, frontier=6, popped=6 (1,7), depth=6, dist2goal=23.0
pushed 7 (1,8)
pushed 27 (2,8)

iter=32, frontier=7, popped=26 (2,7), depth=6, dist2goal=22.2
pushed 47 (3,8)
iter=33, frontier=7, popped=46 (3,7), depth=6, dist2goal=21.4
pushed 66 (4,8)
iter=34, frontier=7, popped=65 (4,7), depth=6, dist2goal=20.6
iter=35, frontier=6, popped=99 (7,1), depth=6, dist2goal=23.0
pushed 113 (8,1)
pushed 114 (8,2)
iter=36, frontier=7, popped=100 (7,2), depth=6, dist2goal=22.2
pushed 115 (8,3)
iter=37, frontier=7, popped=101 (7,3), depth=6, dist2goal=21.4
iter=38, frontier=6, popped=7 (1,8), depth=7, dist2goal=22.5
pushed 8 (1,9)
pushed 28 (2,9)
iter=39, frontier=7, popped=27 (2,8), depth=7, dist2goal=21.6
pushed 48 (3,9)
iter=40, frontier=7, popped=47 (3,8), depth=7, dist2goal=20.8
pushed 67 (4,9)
iter=41, frontier=7, popped=66 (4,8), depth=7, dist2goal=20.0
pushed 78 (5,8)
iter=42, frontier=7, popped=113 (8,1), depth=7, dist2goal=22.5
pushed 130 (9,1)
pushed 131 (9,2)
iter=43, frontier=8, popped=114 (8,2), depth=7, dist2goal=21.6
pushed 132 (9,3)
iter=44, frontier=8, popped=115 (8,3), depth=7, dist2goal=20.8
iter=45, frontier=7, popped=8 (1,9), depth=8, dist2goal=22.0
pushed 9 (1,10)
pushed 29 (2,10)
iter=46, frontier=8, popped=28 (2,9), depth=8, dist2goal=21.1
pushed 49 (3,10)
iter=47, frontier=8, popped=48 (3,9), depth=8, dist2goal=20.2
pushed 68 (4,10)
iter=48, frontier=8, popped=67 (4,9), depth=8, dist2goal=19.4
iter=49, frontier=7, popped=78 (5,8), depth=8, dist2goal=19.2
pushed 90 (6,8)
iter=50, frontier=7, popped=130 (9,1), depth=8, dist2goal=22.0
pushed 145 (10,1)
pushed 146 (10,2)
iter=51, frontier=8, popped=131 (9,2), depth=8, dist2goal=21.1
pushed 147 (10,3)
iter=52, frontier=8, popped=132 (9,3), depth=8, dist2goal=20.2
iter=53, frontier=7, popped=9 (1,10), depth=9, dist2goal=21.5
pushed 10 (1,11)
pushed 30 (2,11)
iter=54, frontier=8, popped=29 (2,10), depth=9, dist2goal=20.6
pushed 50 (3,11)
iter=55, frontier=8, popped=49 (3,10), depth=9, dist2goal=19.7
iter=56, frontier=7, popped=68 (4,10), depth=9, dist2goal=18.9

pushed 51 (3,12)
pushed 52 (3,13)
iter=57, frontier=8, popped=90 (6,8), depth=9, dist2goal=18.4
pushed 104 (7,8)
iter=58, frontier=8, popped=145 (10,1), depth=9, dist2goal=21.5
pushed 150 (11,1)
pushed 151 (11,2)
iter=59, frontier=9, popped=146 (10,2), depth=9, dist2goal=20.6
pushed 152 (11,3)
iter=60, frontier=9, popped=147 (10,3), depth=9, dist2goal=19.7
iter=61, frontier=8, popped=10 (1,11), depth=10, dist2goal=21.0
pushed 11 (1,12)
pushed 31 (2,12)
iter=62, frontier=9, popped=30 (2,11), depth=10, dist2goal=20.1
iter=63, frontier=8, popped=50 (3,11), depth=10, dist2goal=19.2
iter=64, frontier=7, popped=51 (3,12), depth=10, dist2goal=18.8
iter=65, frontier=6, popped=52 (3,13), depth=10, dist2goal=18.4
pushed 32 (2,13)
iter=66, frontier=6, popped=104 (7,8), depth=10, dist2goal=17.7
pushed 103 (7,7)
pushed 105 (7,9)
pushed 118 (8,8)
pushed 119 (8,9)
iter=67, frontier=9, popped=150 (11,1), depth=10, dist2goal=21.0
pushed 155 (12,1)
pushed 156 (12,2)
iter=68, frontier=10, popped=151 (11,2), depth=10, dist2goal=20.1
pushed 157 (12,3)
iter=69, frontier=10, popped=152 (11,3), depth=10, dist2goal=19.2
iter=70, frontier=9, popped=11 (1,12), depth=11, dist2goal=20.6
pushed 12 (1,13)
iter=71, frontier=9, popped=31 (2,12), depth=11, dist2goal=19.7
iter=72, frontier=8, popped=32 (2,13), depth=11, dist2goal=19.3
pushed 33 (2,14)
iter=73, frontier=8, popped=103 (7,7), depth=11, dist2goal=18.4
pushed 102 (7,6)
pushed 117 (8,7)
iter=74, frontier=9, popped=105 (7,9), depth=11, dist2goal=17.0
pushed 106 (7,10)
pushed 120 (8,10)
iter=75, frontier=10, popped=118 (8,8), depth=11, dist2goal=17.0
pushed 135 (9,8)
pushed 136 (9,9)
iter=76, frontier=11, popped=119 (8,9), depth=11, dist2goal=16.3
pushed 137 (9,10)
iter=77, frontier=11, popped=155 (12,1), depth=11, dist2goal=20.6
pushed 160 (13,1)
pushed 161 (13,2)
iter=78, frontier=12, popped=156 (12,2), depth=11, dist2goal=19.7

pushed 162 (13,3)
iter=79, frontier=12, popped=157 (12,3), depth=11, dist2goal=18.8
iter=80, frontier=11, popped=12 (1,13), depth=12, dist2goal=20.2
pushed 13 (1,14)
iter=81, frontier=11, popped=33 (2,14), depth=12, dist2goal=19.0
pushed 34 (2,15)
pushed 53 (3,15)
iter=82, frontier=12, popped=102 (7,6), depth=12, dist2goal=19.1
pushed 116 (8,6)
iter=83, frontier=12, popped=117 (8,7), depth=12, dist2goal=17.7
pushed 134 (9,7)
iter=84, frontier=12, popped=106 (7,10), depth=12, dist2goal=16.4
pushed 121 (8,11)
pushed 122 (8,12)
iter=85, frontier=13, popped=120 (8,10), depth=12, dist2goal=15.6
pushed 138 (9,11)
iter=86, frontier=13, popped=135 (9,8), depth=12, dist2goal=16.3
iter=87, frontier=12, popped=136 (9,9), depth=12, dist2goal=15.6
iter=88, frontier=11, popped=137 (9,10), depth=12, dist2goal=14.9
iter=89, frontier=10, popped=160 (13,1), depth=12, dist2goal=20.2
pushed 173 (14,1)
pushed 174 (14,2)
iter=90, frontier=11, popped=161 (13,2), depth=12, dist2goal=19.3
pushed 175 (14,3)
iter=91, frontier=11, popped=162 (13,3), depth=12, dist2goal=18.4
iter=92, frontier=10, popped=13 (1,14), depth=13, dist2goal=19.9
pushed 14 (1,15)
iter=93, frontier=10, popped=34 (2,15), depth=13, dist2goal=18.7
pushed 35 (2,16)
pushed 54 (3,16)
iter=94, frontier=11, popped=53 (3,15), depth=13, dist2goal=17.7
pushed 69 (4,15)
pushed 70 (4,16)
iter=95, frontier=12, popped=116 (8,6), depth=13, dist2goal=18.4
pushed 133 (9,6)
iter=96, frontier=12, popped=134 (9,7), depth=13, dist2goal=17.0
iter=97, frontier=11, popped=121 (8,11), depth=13, dist2goal=15.0
pushed 139 (9,12)
iter=98, frontier=11, popped=122 (8,12), depth=13, dist2goal=14.4
pushed 123 (8,13)
pushed 140 (9,13)
iter=99, frontier=12, popped=138 (9,11), depth=13, dist2goal=14.2
iter=100, frontier=11, popped=173 (14,1), depth=13, dist2goal=19.9
pushed 185 (15,1)
pushed 186 (15,2)
iter=101, frontier=12, popped=174 (14,2), depth=13, dist2goal=19.0
pushed 187 (15,3)
iter=102, frontier=12, popped=175 (14,3), depth=13, dist2goal=18.0
iter=103, frontier=11, popped=14 (1,15), depth=14, dist2goal=19.6

pushed 15 (1,16)
iter=104, frontier=11, popped=35 (2,16), depth=14, dist2goal=18.4
pushed 36 (2,17)
pushed 55 (3,17)
iter=105, frontier=12, popped=54 (3,16), depth=14, dist2goal=17.5
pushed 71 (4,17)
iter=106, frontier=12, popped=69 (4,15), depth=14, dist2goal=16.8
pushed 81 (5,15)
pushed 82 (5,16)
iter=107, frontier=13, popped=70 (4,16), depth=14, dist2goal=16.5
pushed 83 (5,17)
iter=108, frontier=13, popped=133 (9,6), depth=14, dist2goal=17.8
iter=109, frontier=12, popped=139 (9,12), depth=14, dist2goal=13.6
iter=110, frontier=11, popped=123 (8,13), depth=14, dist2goal=13.9
iter=111, frontier=10, popped=140 (9,13), depth=14, dist2goal=13.0
pushed 141 (9,14)
iter=112, frontier=10, popped=185 (15,1), depth=14, dist2goal=19.6
pushed 198 (16,1)
pushed 199 (16,2)
iter=113, frontier=11, popped=186 (15,2), depth=14, dist2goal=18.7
pushed 200 (16,3)
iter=114, frontier=11, popped=187 (15,3), depth=14, dist2goal=17.7
iter=115, frontier=10, popped=15 (1,16), depth=15, dist2goal=19.4
pushed 16 (1,17)
iter=116, frontier=10, popped=36 (2,17), depth=15, dist2goal=18.2
pushed 37 (2,18)
pushed 56 (3,18)
iter=117, frontier=11, popped=55 (3,17), depth=15, dist2goal=17.3
pushed 72 (4,18)
iter=118, frontier=11, popped=71 (4,17), depth=15, dist2goal=16.3
pushed 84 (5,18)
iter=119, frontier=11, popped=81 (5,15), depth=15, dist2goal=15.8
pushed 80 (5,14)
pushed 93 (6,15)
pushed 94 (6,16)
iter=120, frontier=13, popped=82 (5,16), depth=15, dist2goal=15.5
pushed 95 (6,17)
iter=121, frontier=13, popped=83 (5,17), depth=15, dist2goal=15.3
pushed 96 (6,18)
iter=122, frontier=13, popped=141 (9,14), depth=15, dist2goal=12.5
pushed 142 (9,15)
iter=123, frontier=13, popped=198 (16,1), depth=15, dist2goal=19.4
pushed 211 (17,1)
pushed 212 (17,2)
iter=124, frontier=14, popped=199 (16,2), depth=15, dist2goal=18.4
pushed 213 (17,3)
iter=125, frontier=14, popped=200 (16,3), depth=15, dist2goal=17.5
iter=126, frontier=13, popped=16 (1,17), depth=16, dist2goal=19.2
pushed 17 (1,18)

iter=127, frontier=13, popped=37 (2,18), depth=16, dist2goal=18.1
pushed 38 (2,19)
pushed 57 (3,19)
iter=128, frontier=14, popped=56 (3,18), depth=16, dist2goal=17.1
pushed 73 (4,19)
iter=129, frontier=14, popped=72 (4,18), depth=16, dist2goal=16.1
pushed 85 (5,19)
iter=130, frontier=14, popped=84 (5,18), depth=16, dist2goal=15.1
pushed 97 (6,19)
iter=131, frontier=14, popped=80 (5,14), depth=16, dist2goal=16.2
pushed 79 (5,13)
pushed 92 (6,14)
iter=132, frontier=15, popped=93 (6,15), depth=16, dist2goal=14.9
pushed 107 (7,15)
pushed 108 (7,16)
iter=133, frontier=16, popped=94 (6,16), depth=16, dist2goal=14.6
pushed 109 (7,17)
iter=134, frontier=16, popped=95 (6,17), depth=16, dist2goal=14.3
pushed 110 (7,18)
iter=135, frontier=16, popped=96 (6,18), depth=16, dist2goal=14.1
pushed 111 (7,19)
iter=136, frontier=16, popped=142 (9,15), depth=16, dist2goal=12.1
pushed 124 (8,15)
iter=137, frontier=16, popped=211 (17,1), depth=16, dist2goal=19.2
pushed 223 (18,1)
pushed 224 (18,2)
iter=138, frontier=17, popped=212 (17,2), depth=16, dist2goal=18.2
pushed 225 (18,3)
iter=139, frontier=17, popped=213 (17,3), depth=16, dist2goal=17.3
pushed 226 (18,4)
pushed 227 (18,5)
iter=140, frontier=18, popped=17 (1,18), depth=17, dist2goal=19.1
pushed 18 (1,19)
iter=141, frontier=18, popped=38 (2,19), depth=17, dist2goal=18.0
pushed 39 (2,20)
pushed 58 (3,20)
iter=142, frontier=19, popped=57 (3,19), depth=17, dist2goal=17.0
pushed 74 (4,20)
iter=143, frontier=19, popped=73 (4,19), depth=17, dist2goal=16.0
pushed 86 (5,20)
iter=144, frontier=19, popped=85 (5,19), depth=17, dist2goal=15.0
pushed 98 (6,20)
iter=145, frontier=19, popped=97 (6,19), depth=17, dist2goal=14.0
pushed 112 (7,20)
iter=146, frontier=19, popped=79 (5,13), depth=17, dist2goal=16.6
pushed 91 (6,13)
iter=147, frontier=19, popped=92 (6,14), depth=17, dist2goal=15.2
iter=148, frontier=18, popped=107 (7,15), depth=17, dist2goal=13.9
pushed 125 (8,16)

iter=149, frontier=18, popped=108 (7,16), depth=17, dist2goal=13.6
pushed 126 (8,17)
iter=150, frontier=18, popped=109 (7,17), depth=17, dist2goal=13.3
pushed 127 (8,18)
iter=151, frontier=18, popped=110 (7,18), depth=17, dist2goal=13.2
pushed 128 (8,19)
iter=152, frontier=18, popped=111 (7,19), depth=17, dist2goal=13.0
pushed 129 (8,20)
iter=153, frontier=18, popped=124 (8,15), depth=17, dist2goal=13.0
iter=154, frontier=17, popped=223 (18,1), depth=17, dist2goal=19.1
pushed 237 (19,1)
pushed 238 (19,2)
iter=155, frontier=18, popped=224 (18,2), depth=17, dist2goal=18.1
pushed 239 (19,3)
iter=156, frontier=18, popped=225 (18,3), depth=17, dist2goal=17.1
pushed 240 (19,4)
iter=157, frontier=18, popped=226 (18,4), depth=17, dist2goal=16.1
pushed 241 (19,5)
iter=158, frontier=18, popped=227 (18,5), depth=17, dist2goal=15.1
pushed 228 (18,6)
pushed 242 (19,6)
pushed 214 (17,8)
iter=159, frontier=20, popped=18 (1,19), depth=18, dist2goal=19.0
pushed 19 (1,20)
iter=160, frontier=20, popped=39 (2,20), depth=18, dist2goal=18.0
iter=161, frontier=19, popped=58 (3,20), depth=18, dist2goal=17.0
iter=162, frontier=18, popped=74 (4,20), depth=18, dist2goal=16.0
iter=163, frontier=17, popped=86 (5,20), depth=18, dist2goal=15.0
iter=164, frontier=16, popped=98 (6,20), depth=18, dist2goal=14.0
iter=165, frontier=15, popped=112 (7,20), depth=18, dist2goal=13.0
iter=166, frontier=14, popped=91 (6,13), depth=18, dist2goal=15.7
iter=167, frontier=13, popped=125 (8,16), depth=18, dist2goal=12.6
iter=168, frontier=12, popped=126 (8,17), depth=18, dist2goal=12.4
iter=169, frontier=11, popped=127 (8,18), depth=18, dist2goal=12.2
pushed 143 (9,19)
pushed 148 (10,19)
pushed 153 (11,19)
iter=170, frontier=13, popped=128 (8,19), depth=18, dist2goal=12.0
pushed 144 (9,20)
iter=171, frontier=13, popped=129 (8,20), depth=18, dist2goal=12.0
iter=172, frontier=12, popped=237 (19,1), depth=18, dist2goal=19.0
pushed 255 (20,1)
pushed 256 (20,2)
iter=173, frontier=13, popped=238 (19,2), depth=18, dist2goal=18.0
pushed 257 (20,3)
iter=174, frontier=13, popped=239 (19,3), depth=18, dist2goal=17.0
pushed 258 (20,4)
iter=175, frontier=13, popped=240 (19,4), depth=18, dist2goal=16.0
pushed 259 (20,5)

iter=176, frontier=13, popped=241 (19,5), depth=18, dist2goal=15.0
pushed 260 (20,6)
iter=177, frontier=13, popped=228 (18,6), depth=18, dist2goal=14.1
pushed 229 (18,7)
pushed 243 (19,7)
iter=178, frontier=14, popped=242 (19,6), depth=18, dist2goal=14.0
pushed 261 (20,7)
iter=179, frontier=14, popped=214 (17,8), depth=18, dist2goal=12.4
pushed 201 (16,8)
pushed 230 (18,8)
pushed 202 (16,9)
pushed 203 (16,10)
iter=180, frontier=17, popped=19 (1,20), depth=19, dist2goal=19.0
iter=181, frontier=16, popped=143 (9,19), depth=19, dist2goal=11.0
pushed 149 (10,20)
iter=182, frontier=16, popped=148 (10,19), depth=19, dist2goal=10.0
pushed 154 (11,20)
iter=183, frontier=16, popped=153 (11,19), depth=19, dist2goal=9.1
pushed 158 (12,19)
pushed 159 (12,20)
iter=184, frontier=17, popped=144 (9,20), depth=19, dist2goal=11.0
iter=185, frontier=16, popped=255 (20,1), depth=19, dist2goal=19.0
iter=186, frontier=15, popped=256 (20,2), depth=19, dist2goal=18.0
iter=187, frontier=14, popped=257 (20,3), depth=19, dist2goal=17.0
iter=188, frontier=13, popped=258 (20,4), depth=19, dist2goal=16.0
iter=189, frontier=12, popped=259 (20,5), depth=19, dist2goal=15.0
iter=190, frontier=11, popped=260 (20,6), depth=19, dist2goal=14.0
iter=191, frontier=10, popped=229 (18,7), depth=19, dist2goal=13.2
pushed 244 (19,8)
iter=192, frontier=10, popped=243 (19,7), depth=19, dist2goal=13.0
pushed 262 (20,8)
iter=193, frontier=10, popped=261 (20,7), depth=19, dist2goal=13.0
iter=194, frontier=9, popped=201 (16,8), depth=19, dist2goal=12.6
pushed 188 (15,8)
pushed 177 (14,7)
iter=195, frontier=10, popped=230 (18,8), depth=19, dist2goal=12.2
iter=196, frontier=9, popped=202 (16,9), depth=19, dist2goal=11.7
iter=197, frontier=8, popped=203 (16,10), depth=19, dist2goal=10.8
iter=198, frontier=7, popped=149 (10,20), depth=20, dist2goal=10.0
iter=199, frontier=6, popped=154 (11,20), depth=20, dist2goal=9.0
iter=200, frontier=5, popped=158 (12,19), depth=20, dist2goal=8.1
pushed 171 (13,19)
pushed 172 (13,20)
iter=201, frontier=6, popped=159 (12,20), depth=20, dist2goal=8.0
iter=202, frontier=5, popped=244 (19,8), depth=20, dist2goal=12.0
pushed 263 (20,9)
iter=203, frontier=5, popped=262 (20,8), depth=20, dist2goal=12.0
iter=204, frontier=4, popped=188 (15,8), depth=20, dist2goal=13.0
pushed 178 (14,8)

iter=205, frontier=4, popped=177 (14,7), depth=20, dist2goal=14.3
pushed 176 (14,6)
pushed 164 (13,7)
pushed 163 (13,6)
iter=206, frontier=6, popped=171 (13,19), depth=21, dist2goal=7.1
pushed 183 (14,19)
pushed 182 (14,18)
pushed 184 (14,20)
pushed 181 (14,17)
iter=207, frontier=9, popped=172 (13,20), depth=21, dist2goal=7.0
iter=208, frontier=8, popped=263 (20,9), depth=21, dist2goal=11.0
pushed 264 (20,10)
pushed 245 (19,10)
iter=209, frontier=9, popped=178 (14,8), depth=21, dist2goal=13.4
pushed 165 (13,8)
iter=210, frontier=9, popped=176 (14,6), depth=21, dist2goal=15.2
iter=211, frontier=8, popped=164 (13,7), depth=21, dist2goal=14.8
iter=212, frontier=7, popped=163 (13,6), depth=21, dist2goal=15.7
iter=213, frontier=6, popped=183 (14,19), depth=22, dist2goal=6.1
pushed 196 (15,19)
pushed 197 (15,20)
iter=214, frontier=7, popped=182 (14,18), depth=22, dist2goal=6.3
pushed 195 (15,18)
iter=215, frontier=7, popped=184 (14,20), depth=22, dist2goal=6.0
iter=216, frontier=6, popped=181 (14,17), depth=22, dist2goal=6.7
pushed 180 (14,16)
pushed 194 (15,17)
iter=217, frontier=7, popped=264 (20,10), depth=22, dist2goal=10.0
pushed 265 (20,11)
iter=218, frontier=7, popped=245 (19,10), depth=22, dist2goal=10.0
pushed 246 (19,11)
iter=219, frontier=7, popped=165 (13,8), depth=22, dist2goal=13.9
iter=220, frontier=6, popped=196 (15,19), depth=23, dist2goal=5.1
pushed 209 (16,19)
pushed 210 (16,20)
iter=221, frontier=7, popped=197 (15,20), depth=23, dist2goal=5.0
iter=222, frontier=6, popped=195 (15,18), depth=23, dist2goal=5.4
pushed 208 (16,18)
iter=223, frontier=6, popped=180 (14,16), depth=23, dist2goal=7.2
pushed 179 (14,15)
pushed 193 (15,16)
iter=224, frontier=7, popped=194 (15,17), depth=23, dist2goal=5.8
pushed 207 (16,17)
iter=225, frontier=7, popped=265 (20,11), depth=23, dist2goal=9.0
pushed 266 (20,12)
iter=226, frontier=7, popped=246 (19,11), depth=23, dist2goal=9.1
pushed 247 (19,12)
iter=227, frontier=7, popped=209 (16,19), depth=24, dist2goal=4.1
pushed 221 (17,19)

pushed 222 (17,20)
iter=228, frontier=8, popped=210 (16,20), depth=24, dist2goal=4.0
iter=229, frontier=7, popped=208 (16,18), depth=24, dist2goal=4.5
pushed 220 (17,18)
iter=230, frontier=7, popped=179 (14,15), depth=24, dist2goal=7.8
pushed 170 (13,15)
pushed 192 (15,15)
iter=231, frontier=8, popped=193 (15,16), depth=24, dist2goal=6.4
pushed 206 (16,16)
iter=232, frontier=8, popped=207 (16,17), depth=24, dist2goal=5.0
pushed 219 (17,17)
iter=233, frontier=8, popped=266 (20,12), depth=24, dist2goal=8.0
pushed 267 (20,13)
iter=234, frontier=8, popped=247 (19,12), depth=24, dist2goal=8.1
pushed 248 (19,13)
iter=235, frontier=8, popped=221 (17,19), depth=25, dist2goal=3.2
pushed 235 (18,19)
pushed 236 (18,20)
iter=236, frontier=9, popped=222 (17,20), depth=25, dist2goal=3.0
iter=237, frontier=8, popped=220 (17,18), depth=25, dist2goal=3.6
pushed 234 (18,18)
iter=238, frontier=8, popped=170 (13,15), depth=25, dist2goal=8.6
iter=239, frontier=7, popped=192 (15,15), depth=25, dist2goal=7.1
pushed 191 (15,14)
pushed 205 (16,15)
iter=240, frontier=8, popped=206 (16,16), depth=25, dist2goal=5.7
pushed 218 (17,16)
iter=241, frontier=8, popped=219 (17,17), depth=25, dist2goal=4.2
pushed 233 (18,17)
iter=242, frontier=8, popped=267 (20,13), depth=25, dist2goal=7.0
pushed 268 (20,14)
iter=243, frontier=8, popped=248 (19,13), depth=25, dist2goal=7.1
iter=244, frontier=7, popped=235 (18,19), depth=26, dist2goal=2.2
pushed 253 (19,19)
pushed 254 (19,20)
iter=245, frontier=8, popped=236 (18,20), depth=26, dist2goal=2.0
iter=246, frontier=7, popped=234 (18,18), depth=26, dist2goal=2.8
pushed 252 (19,18)
iter=247, frontier=7, popped=191 (15,14), depth=26, dist2goal=7.8
pushed 190 (15,13)
pushed 204 (16,14)
iter=248, frontier=8, popped=205 (16,15), depth=26, dist2goal=6.4
pushed 217 (17,15)
iter=249, frontier=8, popped=218 (17,16), depth=26, dist2goal=5.0
pushed 232 (18,16)
iter=250, frontier=8, popped=233 (18,17), depth=26, dist2goal=3.6
pushed 251 (19,17)
iter=251, frontier=8, popped=268 (20,14), depth=26, dist2goal=6.0
pushed 269 (20,15)

pushed 249 (19,15)
pushed 231 (18,15)
iter=252, frontier=10, popped=253 (19,19), depth=27, dist2goal=1.4
pushed 273 (20,19)
pushed 274 (20,20)
iter=253, frontier=11, popped=254 (19,20), depth=27, dist2goal=1.0
iter=254, frontier=10, popped=252 (19,18), depth=27, dist2goal=2.2
pushed 272 (20,18)
iter=255, frontier=10, popped=190 (15,13), depth=27, dist2goal=8.6
pushed 189 (15,12)
iter=256, frontier=10, popped=204 (16,14), depth=27, dist2goal=7.2
pushed 216 (17,13)
pushed 215 (17,12)
iter=257, frontier=11, popped=217 (17,15), depth=27, dist2goal=5.8
iter=258, frontier=10, popped=232 (18,16), depth=27, dist2goal=4.5
pushed 250 (19,16)
iter=259, frontier=10, popped=251 (19,17), depth=27, dist2goal=3.2
pushed 271 (20,17)
iter=260, frontier=10, popped=269 (20,15), depth=27, dist2goal=5.0
pushed 270 (20,16)
iter=261, frontier=10, popped=249 (19,15), depth=27, dist2goal=5.1
iter=262, frontier=9, popped=231 (18,15), depth=27, dist2goal=5.4
iter=263, frontier=8, popped=273 (20,19), depth=28, dist2goal=1.0
iter=264, frontier=7, popped=274 (20,20), depth=28, dist2goal=0.0

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Solution path:

1 1
1 2
1 3
1 4
1 5
1 6
1 7
2 8
3 9
4 10
3 13
2 13
2 14
3 15
4 15
5 15
6 16
7 17
8 18
11 19
12 19
13 19
14 19

15 19
16 19
17 19
18 19
19 19
20 20
Search algorithm = BFS
Total iterations = 264
Max frontier size = 21
Vertices visited = 270/275
Path length = 28

Vertices=275, edges=641
Start=(1,1), goal=(20,20), vertices: 0 and 274
iter=1, frontier=0, popped=0 (1,1), depth=0, dist2goal=26.9
pushed 1 (1,2)
pushed 20 (2,1)
pushed 21 (2,2)
iter=2, frontier=2, popped=21 (2,2), depth=1, dist2goal=25.5
pushed 22 (2,3)
pushed 41 (3,2)
pushed 42 (3,3)
iter=3, frontier=4, popped=42 (3,3), depth=2, dist2goal=24.0
pushed 43 (3,4)
pushed 61 (4,3)
pushed 62 (4,4)
iter=4, frontier=6, popped=62 (4,4), depth=3, dist2goal=22.6
pushed 63 (4,5)
iter=5, frontier=6, popped=63 (4,5), depth=4, dist2goal=21.9
pushed 64 (4,6)
pushed 44 (3,5)
iter=6, frontier=7, popped=44 (3,5), depth=5, dist2goal=22.7
pushed 45 (3,6)
pushed 24 (2,5)

pushed 23 (2,4)
iter=7, frontier=9, popped=23 (2,4), depth=6, dist2goal=24.1
pushed 3 (1,4)
pushed 2 (1,3)
iter=8, frontier=10, popped=2 (1,3), depth=7, dist2goal=25.5
iter=9, frontier=9, popped=3 (1,4), depth=7, dist2goal=24.8
pushed 4 (1,5)
iter=10, frontier=9, popped=4 (1,5), depth=8, dist2goal=24.2
pushed 5 (1,6)
pushed 25 (2,6)
iter=11, frontier=10, popped=25 (2,6), depth=9, dist2goal=22.8
pushed 26 (2,7)
pushed 46 (3,7)
iter=12, frontier=11, popped=46 (3,7), depth=10, dist2goal=21.4
pushed 47 (3,8)
pushed 65 (4,7)
pushed 66 (4,8)
iter=13, frontier=13, popped=66 (4,8), depth=11, dist2goal=20.0
pushed 67 (4,9)
pushed 78 (5,8)
iter=14, frontier=14, popped=78 (5,8), depth=12, dist2goal=19.2
pushed 90 (6,8)
iter=15, frontier=14, popped=90 (6,8), depth=13, dist2goal=18.4
pushed 104 (7,8)
iter=16, frontier=14, popped=104 (7,8), depth=14, dist2goal=17.7
pushed 103 (7,7)
pushed 105 (7,9)
pushed 118 (8,8)
pushed 119 (8,9)
iter=17, frontier=17, popped=119 (8,9), depth=15, dist2goal=16.3
pushed 120 (8,10)
pushed 136 (9,9)
pushed 137 (9,10)
iter=18, frontier=19, popped=137 (9,10), depth=16, dist2goal=14.9
pushed 138 (9,11)
iter=19, frontier=19, popped=138 (9,11), depth=17, dist2goal=14.2
pushed 139 (9,12)
pushed 121 (8,11)
iter=20, frontier=20, popped=121 (8,11), depth=18, dist2goal=15.0
pushed 122 (8,12)
pushed 106 (7,10)
iter=21, frontier=21, popped=106 (7,10), depth=19, dist2goal=16.4
iter=22, frontier=20, popped=122 (8,12), depth=19, dist2goal=14.4
pushed 123 (8,13)
pushed 140 (9,13)
iter=23, frontier=21, popped=140 (9,13), depth=20, dist2goal=13.0
pushed 141 (9,14)
iter=24, frontier=21, popped=141 (9,14), depth=21, dist2goal=12.5
pushed 142 (9,15)

iter=25, frontier=21, popped=142 (9,15), depth=22, dist2goal=12.1
pushed 124 (8,15)
iter=26, frontier=21, popped=124 (8,15), depth=23, dist2goal=13.0
pushed 125 (8,16)
pushed 107 (7,15)
iter=27, frontier=22, popped=107 (7,15), depth=24, dist2goal=13.9
pushed 108 (7,16)
pushed 93 (6,15)
pushed 92 (6,14)
iter=28, frontier=24, popped=92 (6,14), depth=25, dist2goal=15.2
pushed 91 (6,13)
pushed 80 (5,14)
pushed 79 (5,13)
iter=29, frontier=26, popped=79 (5,13), depth=26, dist2goal=16.6
iter=30, frontier=25, popped=80 (5,14), depth=26, dist2goal=16.2
pushed 81 (5,15)
iter=31, frontier=25, popped=81 (5,15), depth=27, dist2goal=15.8
pushed 82 (5,16)
pushed 69 (4,15)
pushed 94 (6,16)
iter=32, frontier=27, popped=94 (6,16), depth=28, dist2goal=14.6
pushed 95 (6,17)
pushed 109 (7,17)
iter=33, frontier=28, popped=109 (7,17), depth=29, dist2goal=13.3
pushed 110 (7,18)
pushed 126 (8,17)
pushed 127 (8,18)
iter=34, frontier=30, popped=127 (8,18), depth=30, dist2goal=12.2
pushed 128 (8,19)
pushed 143 (9,19)
pushed 148 (10,19)
pushed 153 (11,19)
iter=35, frontier=33, popped=153 (11,19), depth=31, dist2goal=9.1
pushed 154 (11,20)
pushed 158 (12,19)
pushed 159 (12,20)
iter=36, frontier=35, popped=159 (12,20), depth=32, dist2goal=8.0
pushed 172 (13,20)
iter=37, frontier=35, popped=172 (13,20), depth=33, dist2goal=7.0
pushed 171 (13,19)
pushed 184 (14,20)
iter=38, frontier=36, popped=184 (14,20), depth=34, dist2goal=6.0
pushed 183 (14,19)
pushed 197 (15,20)
iter=39, frontier=37, popped=197 (15,20), depth=35, dist2goal=5.0
pushed 196 (15,19)
pushed 210 (16,20)
iter=40, frontier=38, popped=210 (16,20), depth=36, dist2goal=4.0
pushed 209 (16,19)

pushed 222 (17,20)
iter=41, frontier=39, popped=222 (17,20), depth=37, dist2goal=3.0
pushed 221 (17,19)
pushed 236 (18,20)
iter=42, frontier=40, popped=236 (18,20), depth=38, dist2goal=2.0
pushed 235 (18,19)
pushed 254 (19,20)
iter=43, frontier=41, popped=254 (19,20), depth=39, dist2goal=1.0
pushed 253 (19,19)
pushed 274 (20,20)

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Solution path:

1 1
2 2
3 3
4 4
4 5
3 5
2 4
1 4
1 5
2 6
3 7
4 8
5 8
6 8
7 8
8 9
9 10
9 11
8 11
8 12
9 13
9 14
9 15
8 15
7 15
6 14
5 14
5 15
6 16
7 17
8 18
11 19
12 20
13 20
14 20
15 20
16 20

17 20
18 20
19 20
20 20
Search algorithm = DFS
Total iterations = 43
Max frontier size = 43
Vertices visited = 85/275
Path length = 40

Vertices=275, edges=641
Start=(1,1), goal=(20,20), vertices: 0 and 274
iter=1, frontier=0, popped=0 (1,1), depth=0, dist2goal=26.9
pushed 1 (1,2)
pushed 20 (2,1)
pushed 21 (2,2)
iter=2, frontier=2, popped=21 (2,2), depth=1, dist2goal=25.5
pushed 22 (2,3)
pushed 41 (3,2)
pushed 42 (3,3)
iter=3, frontier=4, popped=42 (3,3), depth=2, dist2goal=24.0
pushed 43 (3,4)
pushed 61 (4,3)
pushed 62 (4,4)
iter=4, frontier=6, popped=62 (4,4), depth=3, dist2goal=22.6
pushed 63 (4,5)
iter=5, frontier=6, popped=63 (4,5), depth=4, dist2goal=21.9
pushed 64 (4,6)
pushed 44 (3,5)
iter=6, frontier=7, popped=64 (4,6), depth=5, dist2goal=21.3
pushed 65 (4,7)
pushed 45 (3,6)

iter=7, frontier=8, popped=65 (4,7), depth=6, dist2goal=20.6
pushed 66 (4,8)
pushed 46 (3,7)
iter=8, frontier=9, popped=66 (4,8), depth=7, dist2goal=20.0
pushed 67 (4,9)
pushed 78 (5,8)
pushed 47 (3,8)
iter=9, frontier=11, popped=78 (5,8), depth=8, dist2goal=19.2
pushed 90 (6,8)
iter=10, frontier=11, popped=90 (6,8), depth=9, dist2goal=18.4
pushed 104 (7,8)
iter=11, frontier=11, popped=104 (7,8), depth=10, dist2goal=17.7
pushed 103 (7,7)
pushed 105 (7,9)
pushed 118 (8,8)
pushed 119 (8,9)
iter=12, frontier=14, popped=119 (8,9), depth=11, dist2goal=16.3
pushed 120 (8,10)
pushed 136 (9,9)
pushed 137 (9,10)
iter=13, frontier=16, popped=137 (9,10), depth=12, dist2goal=14.9
pushed 138 (9,11)
iter=14, frontier=16, popped=138 (9,11), depth=13, dist2goal=14.2
pushed 139 (9,12)
pushed 121 (8,11)
iter=15, frontier=17, popped=139 (9,12), depth=14, dist2goal=13.6
pushed 140 (9,13)
pushed 122 (8,12)
iter=16, frontier=18, popped=140 (9,13), depth=15, dist2goal=13.0
pushed 141 (9,14)
pushed 123 (8,13)
iter=17, frontier=19, popped=141 (9,14), depth=16, dist2goal=12.5
pushed 142 (9,15)
iter=18, frontier=19, popped=142 (9,15), depth=17, dist2goal=12.1
pushed 124 (8,15)
iter=19, frontier=19, popped=124 (8,15), depth=18, dist2goal=13.0
pushed 125 (8,16)
pushed 107 (7,15)
iter=20, frontier=20, popped=125 (8,16), depth=19, dist2goal=12.6
pushed 126 (8,17)
pushed 108 (7,16)
iter=21, frontier=21, popped=126 (8,17), depth=20, dist2goal=12.4
pushed 127 (8,18)
pushed 109 (7,17)
iter=22, frontier=22, popped=127 (8,18), depth=21, dist2goal=12.2
pushed 128 (8,19)
pushed 110 (7,18)
pushed 143 (9,19)
pushed 148 (10,19)

pushed 153 (11,19)
iter=23, frontier=26, popped=153 (11,19), depth=22, dist2goal=9.1
pushed 154 (11,20)
pushed 158 (12,19)
pushed 159 (12,20)
iter=24, frontier=28, popped=159 (12,20), depth=23, dist2goal=8.0
pushed 172 (13,20)
iter=25, frontier=28, popped=172 (13,20), depth=24, dist2goal=7.0
pushed 171 (13,19)
pushed 184 (14,20)
iter=26, frontier=29, popped=184 (14,20), depth=25, dist2goal=6.0
pushed 183 (14,19)
pushed 197 (15,20)
iter=27, frontier=30, popped=197 (15,20), depth=26, dist2goal=5.0
pushed 196 (15,19)
pushed 210 (16,20)
iter=28, frontier=31, popped=210 (16,20), depth=27, dist2goal=4.0
pushed 209 (16,19)
pushed 222 (17,20)
iter=29, frontier=32, popped=222 (17,20), depth=28, dist2goal=3.0
pushed 221 (17,19)
pushed 236 (18,20)
iter=30, frontier=33, popped=236 (18,20), depth=29, dist2goal=2.0
pushed 235 (18,19)
pushed 254 (19,20)
iter=31, frontier=34, popped=254 (19,20), depth=30, dist2goal=1.0
pushed 253 (19,19)
pushed 274 (20,20)

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Solution path:

1 1
2 2
3 3
4 4
4 5
4 6
4 7
4 8
5 8
6 8
7 8
8 9
9 10
9 11
9 12
9 13
9 14
9 15
8 15

8 16
8 17
8 18
11 19
12 20
13 20
14 20
15 20
16 20
17 20
18 20
19 20
20 20
Search algorithm = GBFS
Total iterations = 31
Max frontier size = 36
Vertices visited = 66/275
Path length = 31

Vertices=275, edges=641
Start=(1,1), goal=(20,20), vertices: 0 and 274
iter=1, frontier=0, popped=0 (1,1), depth=0, dist2goal=26.9
pushed 1 (1,2)
pushed 20 (2,1)
pushed 21 (2,2)
iter=2, frontier=2, popped=21 (2,2), depth=1, dist2goal=25.5
pushed 22 (2,3)
pushed 41 (3,2)
pushed 42 (3,3)
iter=3, frontier=4, popped=42 (3,3), depth=2, dist2goal=24.0
pushed 43 (3,4)
pushed 61 (4,3)
pushed 62 (4,4)
iter=4, frontier=6, popped=62 (4,4), depth=3, dist2goal=22.6
pushed 63 (4,5)
iter=5, frontier=6, popped=63 (4,5), depth=4, dist2goal=21.9
pushed 64 (4,6)
pushed 44 (3,5)
iter=6, frontier=7, popped=43 (3,4), depth=3, dist2goal=23.3
pushed 23 (2,4)
iter=7, frontier=7, popped=61 (4,3), depth=3, dist2goal=23.3
pushed 60 (4,2)
pushed 77 (5,3)
iter=8, frontier=8, popped=41 (3,2), depth=2, dist2goal=24.8
pushed 40 (3,1)
iter=9, frontier=8, popped=22 (2,3), depth=2, dist2goal=24.8

pushed 2 (1,3)
iter=10, frontier=8, popped=64 (4,6), depth=5, dist2goal=21.3
pushed 65 (4,7)
pushed 45 (3,6)
iter=11, frontier=9, popped=44 (3,5), depth=5, dist2goal=22.7
pushed 24 (2,5)
iter=12, frontier=9, popped=77 (5,3), depth=4, dist2goal=22.7
pushed 76 (5,2)
pushed 89 (6,3)
iter=13, frontier=10, popped=1 (1,2), depth=1, dist2goal=26.2
iter=14, frontier=9, popped=20 (2,1), depth=1, dist2goal=26.2
iter=15, frontier=8, popped=23 (2,4), depth=4, dist2goal=24.1
pushed 3 (1,4)
iter=16, frontier=8, popped=60 (4,2), depth=4, dist2goal=24.1
pushed 59 (4,1)
iter=17, frontier=8, popped=65 (4,7), depth=6, dist2goal=20.6
pushed 66 (4,8)
pushed 46 (3,7)
iter=18, frontier=9, popped=89 (6,3), depth=5, dist2goal=22.0
pushed 88 (6,2)
pushed 101 (7,3)
iter=19, frontier=10, popped=45 (3,6), depth=6, dist2goal=22.0
pushed 25 (2,6)
iter=20, frontier=10, popped=2 (1,3), depth=3, dist2goal=25.5
iter=21, frontier=9, popped=40 (3,1), depth=3, dist2goal=25.5
iter=22, frontier=8, popped=76 (5,2), depth=5, dist2goal=23.4
pushed 75 (5,1)
iter=23, frontier=8, popped=24 (2,5), depth=6, dist2goal=23.4
pushed 4 (1,5)
iter=24, frontier=8, popped=66 (4,8), depth=7, dist2goal=20.0
pushed 67 (4,9)
pushed 78 (5,8)
pushed 47 (3,8)
iter=25, frontier=10, popped=78 (5,8), depth=8, dist2goal=19.2
pushed 90 (6,8)
iter=26, frontier=10, popped=90 (6,8), depth=9, dist2goal=18.4
pushed 104 (7,8)
iter=27, frontier=10, popped=104 (7,8), depth=10, dist2goal=17.7
pushed 103 (7,7)
pushed 105 (7,9)
pushed 118 (8,8)
pushed 119 (8,9)
iter=28, frontier=13, popped=103 (7,7), depth=11, dist2goal=18.4
pushed 102 (7,6)
pushed 117 (8,7)
iter=29, frontier=14, popped=118 (8,8), depth=11, dist2goal=17.0
pushed 135 (9,8)
pushed 136 (9,9)
iter=30, frontier=15, popped=136 (9,9), depth=12, dist2goal=15.6

pushed 137 (9,10)
iter=31, frontier=15, popped=137 (9,10), depth=13, dist2goal=14.9
pushed 138 (9,11)
pushed 120 (8,10)
iter=32, frontier=16, popped=135 (9,8), depth=12, dist2goal=16.3
pushed 134 (9,7)
iter=33, frontier=16, popped=119 (8,9), depth=11, dist2goal=16.3
iter=34, frontier=15, popped=117 (8,7), depth=12, dist2goal=17.7
pushed 116 (8,6)
iter=35, frontier=15, popped=102 (7,6), depth=12, dist2goal=19.1
iter=36, frontier=14, popped=138 (9,11), depth=14, dist2goal=14.2
pushed 139 (9,12)
pushed 121 (8,11)
iter=37, frontier=15, popped=120 (8,10), depth=14, dist2goal=15.6
pushed 106 (7,10)
iter=38, frontier=15, popped=134 (9,7), depth=13, dist2goal=17.0
pushed 133 (9,6)
iter=39, frontier=15, popped=105 (7,9), depth=11, dist2goal=17.0
iter=40, frontier=14, popped=116 (8,6), depth=13, dist2goal=18.4
iter=41, frontier=13, popped=139 (9,12), depth=15, dist2goal=13.6
pushed 140 (9,13)
pushed 122 (8,12)
iter=42, frontier=14, popped=121 (8,11), depth=15, dist2goal=15.0
iter=43, frontier=13, popped=106 (7,10), depth=15, dist2goal=16.4
iter=44, frontier=12, popped=133 (9,6), depth=14, dist2goal=17.8
iter=45, frontier=11, popped=140 (9,13), depth=16, dist2goal=13.0
pushed 141 (9,14)
pushed 123 (8,13)
iter=46, frontier=12, popped=122 (8,12), depth=16, dist2goal=14.4
iter=47, frontier=11, popped=101 (7,3), depth=6, dist2goal=21.4
pushed 100 (7,2)
pushed 115 (8,3)
iter=48, frontier=12, popped=46 (3,7), depth=7, dist2goal=21.4
pushed 26 (2,7)
iter=49, frontier=12, popped=123 (8,13), depth=17, dist2goal=13.9
iter=50, frontier=11, popped=141 (9,14), depth=17, dist2goal=12.5
pushed 142 (9,15)
iter=51, frontier=11, popped=3 (1,4), depth=5, dist2goal=24.8
iter=52, frontier=10, popped=59 (4,1), depth=5, dist2goal=24.8
iter=53, frontier=9, popped=88 (6,2), depth=6, dist2goal=22.8
pushed 87 (6,1)
iter=54, frontier=9, popped=25 (2,6), depth=7, dist2goal=22.8
pushed 5 (1,6)
iter=55, frontier=9, popped=67 (4,9), depth=8, dist2goal=19.4
pushed 68 (4,10)
pushed 48 (3,9)
iter=56, frontier=10, popped=47 (3,8), depth=8, dist2goal=20.8
pushed 27 (2,8)
iter=57, frontier=10, popped=115 (8,3), depth=7, dist2goal=20.8

pushed 114 (8,2)
pushed 132 (9,3)
iter=58, frontier=11, popped=4 (1,5), depth=7, dist2goal=24.2
iter=59, frontier=10, popped=75 (5,1), depth=6, dist2goal=24.2
iter=60, frontier=9, popped=142 (9,15), depth=18, dist2goal=12.1
pushed 124 (8,15)
iter=61, frontier=9, popped=26 (2,7), depth=8, dist2goal=22.2
pushed 6 (1,7)
iter=62, frontier=9, popped=100 (7,2), depth=7, dist2goal=22.2
pushed 99 (7,1)
iter=63, frontier=9, popped=68 (4,10), depth=9, dist2goal=18.9
pushed 49 (3,10)
pushed 50 (3,11)
pushed 51 (3,12)
pushed 52 (3,13)
iter=64, frontier=12, popped=132 (9,3), depth=8, dist2goal=20.2
pushed 131 (9,2)
pushed 147 (10,3)
iter=65, frontier=13, popped=48 (3,9), depth=9, dist2goal=20.2
pushed 28 (2,9)
iter=66, frontier=13, popped=5 (1,6), depth=8, dist2goal=23.6
iter=67, frontier=12, popped=87 (6,1), depth=7, dist2goal=23.6
iter=68, frontier=11, popped=124 (8,15), depth=19, dist2goal=13.0
pushed 125 (8,16)
pushed 107 (7,15)
iter=69, frontier=12, popped=27 (2,8), depth=9, dist2goal=21.6
pushed 7 (1,8)
iter=70, frontier=12, popped=114 (8,2), depth=8, dist2goal=21.6
pushed 113 (8,1)
iter=71, frontier=12, popped=147 (10,3), depth=9, dist2goal=19.7
pushed 146 (10,2)
pushed 152 (11,3)
iter=72, frontier=13, popped=49 (3,10), depth=10, dist2goal=19.7
pushed 29 (2,10)
iter=73, frontier=13, popped=6 (1,7), depth=9, dist2goal=23.0
iter=74, frontier=12, popped=99 (7,1), depth=8, dist2goal=23.0
iter=75, frontier=11, popped=131 (9,2), depth=9, dist2goal=21.1
pushed 130 (9,1)
iter=76, frontier=11, popped=28 (2,9), depth=10, dist2goal=21.1
pushed 8 (1,9)
iter=77, frontier=11, popped=107 (7,15), depth=20, dist2goal=13.9
pushed 108 (7,16)
pushed 93 (6,15)
pushed 92 (6,14)
iter=78, frontier=13, popped=92 (6,14), depth=21, dist2goal=15.2
pushed 91 (6,13)
pushed 80 (5,14)
pushed 79 (5,13)
iter=79, frontier=15, popped=91 (6,13), depth=22, dist2goal=15.7

iter=80, frontier=14, popped=79 (5,13), depth=22, dist2goal=16.6
iter=81, frontier=13, popped=125 (8,16), depth=20, dist2goal=12.6
pushed 126 (8,17)
iter=82, frontier=13, popped=152 (11,3), depth=10, dist2goal=19.2
pushed 151 (11,2)
pushed 157 (12,3)
iter=83, frontier=14, popped=50 (3,11), depth=10, dist2goal=19.2
pushed 30 (2,11)
iter=84, frontier=14, popped=7 (1,8), depth=10, dist2goal=22.5
iter=85, frontier=13, popped=113 (8,1), depth=9, dist2goal=22.5
iter=86, frontier=12, popped=146 (10,2), depth=10, dist2goal=20.6
pushed 145 (10,1)
iter=87, frontier=12, popped=29 (2,10), depth=11, dist2goal=20.6
pushed 9 (1,10)
iter=88, frontier=12, popped=93 (6,15), depth=21, dist2goal=14.9
pushed 94 (6,16)
pushed 81 (5,15)
iter=89, frontier=13, popped=80 (5,14), depth=22, dist2goal=16.2
iter=90, frontier=12, popped=108 (7,16), depth=21, dist2goal=13.6
pushed 109 (7,17)
iter=91, frontier=12, popped=126 (8,17), depth=21, dist2goal=12.4
pushed 127 (8,18)
iter=92, frontier=12, popped=130 (9,1), depth=10, dist2goal=22.0
iter=93, frontier=11, popped=8 (1,9), depth=11, dist2goal=22.0
iter=94, frontier=10, popped=157 (12,3), depth=11, dist2goal=18.8
pushed 156 (12,2)
pushed 162 (13,3)
iter=95, frontier=11, popped=51 (3,12), depth=10, dist2goal=18.8
pushed 31 (2,12)
iter=96, frontier=11, popped=151 (11,2), depth=11, dist2goal=20.1
pushed 150 (11,1)
iter=97, frontier=11, popped=30 (2,11), depth=11, dist2goal=20.1
pushed 10 (1,11)
iter=98, frontier=11, popped=81 (5,15), depth=22, dist2goal=15.8
pushed 82 (5,16)
pushed 69 (4,15)
iter=99, frontier=12, popped=94 (6,16), depth=22, dist2goal=14.6
pushed 95 (6,17)
iter=100, frontier=12, popped=109 (7,17), depth=22, dist2goal=13.3
pushed 110 (7,18)
iter=101, frontier=12, popped=9 (1,10), depth=12, dist2goal=21.5
iter=102, frontier=11, popped=145 (10,1), depth=11, dist2goal=21.5
iter=103, frontier=10, popped=162 (13,3), depth=12, dist2goal=18.4
pushed 161 (13,2)
pushed 175 (14,3)
iter=104, frontier=11, popped=52 (3,13), depth=10, dist2goal=18.4
pushed 32 (2,13)
iter=105, frontier=11, popped=127 (8,18), depth=22, dist2goal=12.2
pushed 128 (8,19)

pushed 143 (9,19)
pushed 148 (10,19)
pushed 153 (11,19)
iter=106, frontier=14, popped=153 (11,19), depth=23, dist2goal=9.1
pushed 154 (11,20)
pushed 158 (12,19)
pushed 159 (12,20)
iter=107, frontier=16, popped=158 (12,19), depth=24, dist2goal=8.1
pushed 171 (13,19)
pushed 172 (13,20)
iter=108, frontier=17, popped=171 (13,19), depth=25, dist2goal=7.1
pushed 183 (14,19)
pushed 182 (14,18)
pushed 184 (14,20)
pushed 181 (14,17)
iter=109, frontier=20, popped=181 (14,17), depth=26, dist2goal=6.7
pushed 180 (14,16)
pushed 194 (15,17)
pushed 195 (15,18)
iter=110, frontier=22, popped=180 (14,16), depth=27, dist2goal=7.2
pushed 179 (14,15)
pushed 193 (15,16)
iter=111, frontier=23, popped=179 (14,15), depth=28, dist2goal=7.8
pushed 170 (13,15)
pushed 192 (15,15)
iter=112, frontier=24, popped=192 (15,15), depth=29, dist2goal=7.1
pushed 191 (15,14)
pushed 205 (16,15)
pushed 206 (16,16)
iter=113, frontier=26, popped=206 (16,16), depth=30, dist2goal=5.7
pushed 207 (16,17)
pushed 218 (17,16)
pushed 219 (17,17)
iter=114, frontier=28, popped=219 (17,17), depth=31, dist2goal=4.2
pushed 220 (17,18)
pushed 233 (18,17)
pushed 234 (18,18)
iter=115, frontier=30, popped=234 (18,18), depth=32, dist2goal=2.8
pushed 235 (18,19)
pushed 252 (19,18)
pushed 253 (19,19)
iter=116, frontier=32, popped=253 (19,19), depth=33, dist2goal=1.4
pushed 254 (19,20)
pushed 273 (20,19)
pushed 274 (20,20)

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Solution path:

1 1
2 2

3 3

4 4

4 5

4 6

4 7

4 8

5 8

6 8

7 8

8 8

9 9

9 10

9 11

9 12

9 13

9 14

9 15

8 15

8 16

8 17

8 18

11 19

12 19

13 19

14 17

14 16

14 15

15 15

16 16

17 17

18 18

19 19

20 20

Search algorithm = ASTAR

Total iterations = 116

Max frontier size = 35

Vertices visited = 150/275

Path length = 34

Vertices=275, edges=641

Start=(1,10), goal=(20,10), vertices: 9 and 264

iter=1, frontier=0, popped=9 (1,10), depth=0, dist2goal=19.0

pushed 8 (1,9)

pushed 10 (1,11)

pushed 29 (2,10)

pushed 30 (2,11)

iter=2, frontier=3, popped=8 (1,9), depth=1, dist2goal=19.0
pushed 7 (1,8)
pushed 28 (2,9)
iter=3, frontier=4, popped=10 (1,11), depth=1, dist2goal=19.0
pushed 11 (1,12)
pushed 31 (2,12)
iter=4, frontier=5, popped=29 (2,10), depth=1, dist2goal=18.0
pushed 49 (3,10)
pushed 50 (3,11)
iter=5, frontier=6, popped=30 (2,11), depth=1, dist2goal=18.0
pushed 51 (3,12)
iter=6, frontier=6, popped=7 (1,8), depth=2, dist2goal=19.1
pushed 6 (1,7)
pushed 27 (2,8)
iter=7, frontier=7, popped=28 (2,9), depth=2, dist2goal=18.0
pushed 48 (3,9)
iter=8, frontier=7, popped=11 (1,12), depth=2, dist2goal=19.1
pushed 12 (1,13)
pushed 32 (2,13)
iter=9, frontier=8, popped=31 (2,12), depth=2, dist2goal=18.1
pushed 52 (3,13)
iter=10, frontier=8, popped=49 (3,10), depth=2, dist2goal=17.0
pushed 68 (4,10)
iter=11, frontier=8, popped=50 (3,11), depth=2, dist2goal=17.0
iter=12, frontier=7, popped=51 (3,12), depth=2, dist2goal=17.1
iter=13, frontier=6, popped=6 (1,7), depth=3, dist2goal=19.2
pushed 5 (1,6)
pushed 26 (2,7)
iter=14, frontier=7, popped=27 (2,8), depth=3, dist2goal=18.1
pushed 47 (3,8)
iter=15, frontier=7, popped=48 (3,9), depth=3, dist2goal=17.0
pushed 67 (4,9)
iter=16, frontier=7, popped=12 (1,13), depth=3, dist2goal=19.2
pushed 13 (1,14)
pushed 33 (2,14)
iter=17, frontier=8, popped=32 (2,13), depth=3, dist2goal=18.2
iter=18, frontier=7, popped=52 (3,13), depth=3, dist2goal=17.3
iter=19, frontier=6, popped=68 (4,10), depth=3, dist2goal=16.0
iter=20, frontier=5, popped=5 (1,6), depth=4, dist2goal=19.4
pushed 4 (1,5)
pushed 25 (2,6)
iter=21, frontier=6, popped=26 (2,7), depth=4, dist2goal=18.2
pushed 46 (3,7)
iter=22, frontier=6, popped=47 (3,8), depth=4, dist2goal=17.1
pushed 66 (4,8)
iter=23, frontier=6, popped=67 (4,9), depth=4, dist2goal=16.0
iter=24, frontier=5, popped=13 (1,14), depth=4, dist2goal=19.4
pushed 14 (1,15)
pushed 34 (2,15)

iter=25, frontier=6, popped=33 (2,14), depth=4, dist2goal=18.4
pushed 53 (3,15)
iter=26, frontier=6, popped=4 (1,5), depth=5, dist2goal=19.6
pushed 3 (1,4)
pushed 24 (2,5)
iter=27, frontier=7, popped=25 (2,6), depth=5, dist2goal=18.4
pushed 45 (3,6)
iter=28, frontier=7, popped=46 (3,7), depth=5, dist2goal=17.3
pushed 65 (4,7)
iter=29, frontier=7, popped=66 (4,8), depth=5, dist2goal=16.1
pushed 78 (5,8)
iter=30, frontier=7, popped=14 (1,15), depth=5, dist2goal=19.6
pushed 15 (1,16)
pushed 35 (2,16)
iter=31, frontier=8, popped=34 (2,15), depth=5, dist2goal=18.7
pushed 54 (3,16)
iter=32, frontier=8, popped=53 (3,15), depth=5, dist2goal=17.7
pushed 69 (4,15)
pushed 70 (4,16)
iter=33, frontier=9, popped=3 (1,4), depth=6, dist2goal=19.9
pushed 2 (1,3)
pushed 23 (2,4)
iter=34, frontier=10, popped=24 (2,5), depth=6, dist2goal=18.7
pushed 44 (3,5)
iter=35, frontier=10, popped=45 (3,6), depth=6, dist2goal=17.5
pushed 64 (4,6)
iter=36, frontier=10, popped=65 (4,7), depth=6, dist2goal=16.3
iter=37, frontier=9, popped=78 (5,8), depth=6, dist2goal=15.1
pushed 90 (6,8)
iter=38, frontier=9, popped=15 (1,16), depth=6, dist2goal=19.9
pushed 16 (1,17)
pushed 36 (2,17)
iter=39, frontier=10, popped=35 (2,16), depth=6, dist2goal=19.0
pushed 55 (3,17)
iter=40, frontier=10, popped=54 (3,16), depth=6, dist2goal=18.0
pushed 71 (4,17)
iter=41, frontier=10, popped=69 (4,15), depth=6, dist2goal=16.8
pushed 81 (5,15)
pushed 82 (5,16)
iter=42, frontier=11, popped=70 (4,16), depth=6, dist2goal=17.1
pushed 83 (5,17)
iter=43, frontier=11, popped=2 (1,3), depth=7, dist2goal=20.2
pushed 1 (1,2)
pushed 22 (2,3)
iter=44, frontier=12, popped=23 (2,4), depth=7, dist2goal=19.0
pushed 43 (3,4)
iter=45, frontier=12, popped=44 (3,5), depth=7, dist2goal=17.7
pushed 63 (4,5)
iter=46, frontier=12, popped=64 (4,6), depth=7, dist2goal=16.5

iter=47, frontier=11, popped=90 (6,8), depth=7, dist2goal=14.1
pushed 104 (7,8)
iter=48, frontier=11, popped=16 (1,17), depth=7, dist2goal=20.2
pushed 17 (1,18)
pushed 37 (2,18)
iter=49, frontier=12, popped=36 (2,17), depth=7, dist2goal=19.3
pushed 56 (3,18)
iter=50, frontier=12, popped=55 (3,17), depth=7, dist2goal=18.4
pushed 72 (4,18)
iter=51, frontier=12, popped=71 (4,17), depth=7, dist2goal=17.5
pushed 84 (5,18)
iter=52, frontier=12, popped=81 (5,15), depth=7, dist2goal=15.8
pushed 80 (5,14)
pushed 93 (6,15)
pushed 94 (6,16)
iter=53, frontier=14, popped=82 (5,16), depth=7, dist2goal=16.2
pushed 95 (6,17)
iter=54, frontier=14, popped=83 (5,17), depth=7, dist2goal=16.6
pushed 96 (6,18)
iter=55, frontier=14, popped=1 (1,2), depth=8, dist2goal=20.6
pushed 0 (1,1)
pushed 21 (2,2)
iter=56, frontier=15, popped=22 (2,3), depth=8, dist2goal=19.3
pushed 42 (3,3)
iter=57, frontier=15, popped=43 (3,4), depth=8, dist2goal=18.0
pushed 62 (4,4)
iter=58, frontier=15, popped=63 (4,5), depth=8, dist2goal=16.8
iter=59, frontier=14, popped=104 (7,8), depth=8, dist2goal=13.2
pushed 103 (7,7)
pushed 105 (7,9)
pushed 118 (8,8)
pushed 119 (8,9)
iter=60, frontier=17, popped=17 (1,18), depth=8, dist2goal=20.6
pushed 18 (1,19)
pushed 38 (2,19)
iter=61, frontier=18, popped=37 (2,18), depth=8, dist2goal=19.7
pushed 57 (3,19)
iter=62, frontier=18, popped=56 (3,18), depth=8, dist2goal=18.8
pushed 73 (4,19)
iter=63, frontier=18, popped=72 (4,18), depth=8, dist2goal=17.9
pushed 85 (5,19)
iter=64, frontier=18, popped=84 (5,18), depth=8, dist2goal=17.0
pushed 97 (6,19)
iter=65, frontier=18, popped=80 (5,14), depth=8, dist2goal=15.5
pushed 79 (5,13)
pushed 92 (6,14)
iter=66, frontier=19, popped=93 (6,15), depth=8, dist2goal=14.9
pushed 107 (7,15)
pushed 108 (7,16)

iter=67, frontier=20, popped=94 (6,16), depth=8, dist2goal=15.2
pushed 109 (7,17)
iter=68, frontier=20, popped=95 (6,17), depth=8, dist2goal=15.7
pushed 110 (7,18)
iter=69, frontier=20, popped=96 (6,18), depth=8, dist2goal=16.1
pushed 111 (7,19)
iter=70, frontier=20, popped=0 (1,1), depth=9, dist2goal=21.0
pushed 20 (2,1)
iter=71, frontier=20, popped=21 (2,2), depth=9, dist2goal=19.7
pushed 41 (3,2)
iter=72, frontier=20, popped=42 (3,3), depth=9, dist2goal=18.4
pushed 61 (4,3)
iter=73, frontier=20, popped=62 (4,4), depth=9, dist2goal=17.1
iter=74, frontier=19, popped=103 (7,7), depth=9, dist2goal=13.3
pushed 102 (7,6)
pushed 117 (8,7)
iter=75, frontier=20, popped=105 (7,9), depth=9, dist2goal=13.0
pushed 106 (7,10)
pushed 120 (8,10)
iter=76, frontier=21, popped=118 (8,8), depth=9, dist2goal=12.2
pushed 135 (9,8)
pushed 136 (9,9)
iter=77, frontier=22, popped=119 (8,9), depth=9, dist2goal=12.0
pushed 137 (9,10)
iter=78, frontier=22, popped=18 (1,19), depth=9, dist2goal=21.0
pushed 19 (1,20)
pushed 39 (2,20)
iter=79, frontier=23, popped=38 (2,19), depth=9, dist2goal=20.1
pushed 58 (3,20)
iter=80, frontier=23, popped=57 (3,19), depth=9, dist2goal=19.2
pushed 74 (4,20)
iter=81, frontier=23, popped=73 (4,19), depth=9, dist2goal=18.4
pushed 86 (5,20)
iter=82, frontier=23, popped=85 (5,19), depth=9, dist2goal=17.5
pushed 98 (6,20)
iter=83, frontier=23, popped=97 (6,19), depth=9, dist2goal=16.6
pushed 112 (7,20)
iter=84, frontier=23, popped=79 (5,13), depth=9, dist2goal=15.3
pushed 91 (6,13)
iter=85, frontier=23, popped=92 (6,14), depth=9, dist2goal=14.6
iter=86, frontier=22, popped=107 (7,15), depth=9, dist2goal=13.9
pushed 124 (8,15)
pushed 125 (8,16)
iter=87, frontier=23, popped=108 (7,16), depth=9, dist2goal=14.3
pushed 126 (8,17)
iter=88, frontier=23, popped=109 (7,17), depth=9, dist2goal=14.8
pushed 127 (8,18)
iter=89, frontier=23, popped=110 (7,18), depth=9, dist2goal=15.3
pushed 128 (8,19)

iter=90, frontier=23, popped=111 (7,19), depth=9, dist2goal=15.8
pushed 129 (8,20)
iter=91, frontier=23, popped=20 (2,1), depth=10, dist2goal=20.1
pushed 40 (3,1)
iter=92, frontier=23, popped=41 (3,2), depth=10, dist2goal=18.8
pushed 60 (4,2)
iter=93, frontier=23, popped=61 (4,3), depth=10, dist2goal=17.5
pushed 77 (5,3)
iter=94, frontier=23, popped=102 (7,6), depth=10, dist2goal=13.6
pushed 116 (8,6)
iter=95, frontier=23, popped=117 (8,7), depth=10, dist2goal=12.4
pushed 134 (9,7)
iter=96, frontier=23, popped=106 (7,10), depth=10, dist2goal=13.0
pushed 121 (8,11)
pushed 122 (8,12)
iter=97, frontier=24, popped=120 (8,10), depth=10, dist2goal=12.0
pushed 138 (9,11)
iter=98, frontier=24, popped=135 (9,8), depth=10, dist2goal=11.2
iter=99, frontier=23, popped=136 (9,9), depth=10, dist2goal=11.0
iter=100, frontier=22, popped=137 (9,10), depth=10, dist2goal=11.0
iter=101, frontier=21, popped=19 (1,20), depth=10, dist2goal=21.5
iter=102, frontier=20, popped=39 (2,20), depth=10, dist2goal=20.6
iter=103, frontier=19, popped=58 (3,20), depth=10, dist2goal=19.7
iter=104, frontier=18, popped=74 (4,20), depth=10, dist2goal=18.9
iter=105, frontier=17, popped=86 (5,20), depth=10, dist2goal=18.0
iter=106, frontier=16, popped=98 (6,20), depth=10, dist2goal=17.2
iter=107, frontier=15, popped=112 (7,20), depth=10, dist2goal=16.4
iter=108, frontier=14, popped=91 (6,13), depth=10, dist2goal=14.3
iter=109, frontier=13, popped=124 (8,15), depth=10, dist2goal=13.0
pushed 142 (9,15)
iter=110, frontier=13, popped=125 (8,16), depth=10, dist2goal=13.4
iter=111, frontier=12, popped=126 (8,17), depth=10, dist2goal=13.9
iter=112, frontier=11, popped=127 (8,18), depth=10, dist2goal=14.4
pushed 143 (9,19)
pushed 148 (10,19)
pushed 153 (11,19)
iter=113, frontier=13, popped=128 (8,19), depth=10, dist2goal=15.0
pushed 144 (9,20)
iter=114, frontier=13, popped=129 (8,20), depth=10, dist2goal=15.6
iter=115, frontier=12, popped=40 (3,1), depth=11, dist2goal=19.2
pushed 59 (4,1)
iter=116, frontier=12, popped=60 (4,2), depth=11, dist2goal=17.9
pushed 76 (5,2)
iter=117, frontier=12, popped=77 (5,3), depth=11, dist2goal=16.6
pushed 89 (6,3)
iter=118, frontier=12, popped=116 (8,6), depth=11, dist2goal=12.6
pushed 133 (9,6)
iter=119, frontier=12, popped=134 (9,7), depth=11, dist2goal=11.4
iter=120, frontier=11, popped=121 (8,11), depth=11, dist2goal=12.0

pushed 139 (9,12)
iter=121, frontier=11, popped=122 (8,12), depth=11, dist2goal=12.2
pushed 123 (8,13)
pushed 140 (9,13)
iter=122, frontier=12, popped=138 (9,11), depth=11, dist2goal=11.0
iter=123, frontier=11, popped=142 (9,15), depth=11, dist2goal=12.1
pushed 141 (9,14)
iter=124, frontier=11, popped=143 (9,19), depth=11, dist2goal=14.2
pushed 149 (10,20)
iter=125, frontier=11, popped=148 (10,19), depth=11, dist2goal=13.5
pushed 154 (11,20)
iter=126, frontier=11, popped=153 (11,19), depth=11, dist2goal=12.7
pushed 158 (12,19)
pushed 159 (12,20)
iter=127, frontier=12, popped=144 (9,20), depth=11, dist2goal=14.9
iter=128, frontier=11, popped=59 (4,1), depth=12, dist2goal=18.4
pushed 75 (5,1)
iter=129, frontier=11, popped=76 (5,2), depth=12, dist2goal=17.0
pushed 88 (6,2)
iter=130, frontier=11, popped=89 (6,3), depth=12, dist2goal=15.7
pushed 101 (7,3)
iter=131, frontier=11, popped=133 (9,6), depth=12, dist2goal=11.7
iter=132, frontier=10, popped=139 (9,12), depth=12, dist2goal=11.2
iter=133, frontier=9, popped=123 (8,13), depth=12, dist2goal=12.4
iter=134, frontier=8, popped=140 (9,13), depth=12, dist2goal=11.4
iter=135, frontier=7, popped=141 (9,14), depth=12, dist2goal=11.7
iter=136, frontier=6, popped=149 (10,20), depth=12, dist2goal=14.1
iter=137, frontier=5, popped=154 (11,20), depth=12, dist2goal=13.5
iter=138, frontier=4, popped=158 (12,19), depth=12, dist2goal=12.0
pushed 171 (13,19)
pushed 172 (13,20)
iter=139, frontier=5, popped=159 (12,20), depth=12, dist2goal=12.8
iter=140, frontier=4, popped=75 (5,1), depth=13, dist2goal=17.5
pushed 87 (6,1)
iter=141, frontier=4, popped=88 (6,2), depth=13, dist2goal=16.1
pushed 100 (7,2)
iter=142, frontier=4, popped=101 (7,3), depth=13, dist2goal=14.8
pushed 115 (8,3)
iter=143, frontier=4, popped=171 (13,19), depth=13, dist2goal=11.4
pushed 183 (14,19)
pushed 182 (14,18)
pushed 184 (14,20)
pushed 181 (14,17)
iter=144, frontier=7, popped=172 (13,20), depth=13, dist2goal=12.2
iter=145, frontier=6, popped=87 (6,1), depth=14, dist2goal=16.6
pushed 99 (7,1)
iter=146, frontier=6, popped=100 (7,2), depth=14, dist2goal=15.3
pushed 114 (8,2)
iter=147, frontier=6, popped=115 (8,3), depth=14, dist2goal=13.9

pushed 132 (9,3)
iter=148, frontier=6, popped=183 (14,19), depth=14, dist2goal=10.8
pushed 196 (15,19)
pushed 197 (15,20)
iter=149, frontier=7, popped=182 (14,18), depth=14, dist2goal=10.0
pushed 195 (15,18)
iter=150, frontier=7, popped=184 (14,20), depth=14, dist2goal=11.7
iter=151, frontier=6, popped=181 (14,17), depth=14, dist2goal=9.2
pushed 180 (14,16)
pushed 194 (15,17)
iter=152, frontier=7, popped=99 (7,1), depth=15, dist2goal=15.8
pushed 113 (8,1)
iter=153, frontier=7, popped=114 (8,2), depth=15, dist2goal=14.4
pushed 131 (9,2)
iter=154, frontier=7, popped=132 (9,3), depth=15, dist2goal=13.0
pushed 147 (10,3)
iter=155, frontier=7, popped=196 (15,19), depth=15, dist2goal=10.3
pushed 209 (16,19)
pushed 210 (16,20)
iter=156, frontier=8, popped=197 (15,20), depth=15, dist2goal=11.2
iter=157, frontier=7, popped=195 (15,18), depth=15, dist2goal=9.4
pushed 208 (16,18)
iter=158, frontier=7, popped=180 (14,16), depth=15, dist2goal=8.5
pushed 179 (14,15)
pushed 193 (15,16)
iter=159, frontier=8, popped=194 (15,17), depth=15, dist2goal=8.6
pushed 207 (16,17)
iter=160, frontier=8, popped=113 (8,1), depth=16, dist2goal=15.0
pushed 130 (9,1)
iter=161, frontier=8, popped=131 (9,2), depth=16, dist2goal=13.6
pushed 146 (10,2)
iter=162, frontier=8, popped=147 (10,3), depth=16, dist2goal=12.2
pushed 152 (11,3)
iter=163, frontier=8, popped=209 (16,19), depth=16, dist2goal=9.8
pushed 221 (17,19)
pushed 222 (17,20)
iter=164, frontier=9, popped=210 (16,20), depth=16, dist2goal=10.8
iter=165, frontier=8, popped=208 (16,18), depth=16, dist2goal=8.9
pushed 220 (17,18)
iter=166, frontier=8, popped=179 (14,15), depth=16, dist2goal=7.8
pushed 170 (13,15)
pushed 192 (15,15)
iter=167, frontier=9, popped=193 (15,16), depth=16, dist2goal=7.8
pushed 206 (16,16)
iter=168, frontier=9, popped=207 (16,17), depth=16, dist2goal=8.1
pushed 219 (17,17)
iter=169, frontier=9, popped=130 (9,1), depth=17, dist2goal=14.2
pushed 145 (10,1)
iter=170, frontier=9, popped=146 (10,2), depth=17, dist2goal=12.8

pushed 151 (11,2)
iter=171, frontier=9, popped=152 (11,3), depth=17, dist2goal=11.4
pushed 157 (12,3)
iter=172, frontier=9, popped=221 (17,19), depth=17, dist2goal=9.5
pushed 235 (18,19)
pushed 236 (18,20)
iter=173, frontier=10, popped=222 (17,20), depth=17, dist2goal=10.4
iter=174, frontier=9, popped=220 (17,18), depth=17, dist2goal=8.5
pushed 234 (18,18)
iter=175, frontier=9, popped=170 (13,15), depth=17, dist2goal=8.6
iter=176, frontier=8, popped=192 (15,15), depth=17, dist2goal=7.1
pushed 191 (15,14)
pushed 205 (16,15)
iter=177, frontier=9, popped=206 (16,16), depth=17, dist2goal=7.2
pushed 218 (17,16)
iter=178, frontier=9, popped=219 (17,17), depth=17, dist2goal=7.6
pushed 233 (18,17)
iter=179, frontier=9, popped=145 (10,1), depth=18, dist2goal=13.5
pushed 150 (11,1)
iter=180, frontier=9, popped=151 (11,2), depth=18, dist2goal=12.0
pushed 156 (12,2)
iter=181, frontier=9, popped=157 (12,3), depth=18, dist2goal=10.6
pushed 162 (13,3)
iter=182, frontier=9, popped=235 (18,19), depth=18, dist2goal=9.2
pushed 253 (19,19)
pushed 254 (19,20)
iter=183, frontier=10, popped=236 (18,20), depth=18, dist2goal=10.2
iter=184, frontier=9, popped=234 (18,18), depth=18, dist2goal=8.2
pushed 252 (19,18)
iter=185, frontier=9, popped=191 (15,14), depth=18, dist2goal=6.4
pushed 190 (15,13)
pushed 204 (16,14)
iter=186, frontier=10, popped=205 (16,15), depth=18, dist2goal=6.4
pushed 217 (17,15)
iter=187, frontier=10, popped=218 (17,16), depth=18, dist2goal=6.7
pushed 232 (18,16)
iter=188, frontier=10, popped=233 (18,17), depth=18, dist2goal=7.3
pushed 251 (19,17)
iter=189, frontier=10, popped=150 (11,1), depth=19, dist2goal=12.7
pushed 155 (12,1)
iter=190, frontier=10, popped=156 (12,2), depth=19, dist2goal=11.3
pushed 161 (13,2)
iter=191, frontier=10, popped=162 (13,3), depth=19, dist2goal=9.9
pushed 175 (14,3)
iter=192, frontier=10, popped=253 (19,19), depth=19, dist2goal=9.1
pushed 273 (20,19)
pushed 274 (20,20)
iter=193, frontier=11, popped=254 (19,20), depth=19, dist2goal=10.0
iter=194, frontier=10, popped=252 (19,18), depth=19, dist2goal=8.1

pushed 272 (20,18)
iter=195, frontier=10, popped=190 (15,13), depth=19, dist2goal=5.8
pushed 189 (15,12)
iter=196, frontier=10, popped=204 (16,14), depth=19, dist2goal=5.7
pushed 216 (17,13)
pushed 215 (17,12)
pushed 231 (18,15)
iter=197, frontier=12, popped=217 (17,15), depth=19, dist2goal=5.8
iter=198, frontier=11, popped=232 (18,16), depth=19, dist2goal=6.3
pushed 250 (19,16)
iter=199, frontier=11, popped=251 (19,17), depth=19, dist2goal=7.1
pushed 271 (20,17)
iter=200, frontier=11, popped=155 (12,1), depth=20, dist2goal=12.0
pushed 160 (13,1)
iter=201, frontier=11, popped=161 (13,2), depth=20, dist2goal=10.6
pushed 174 (14,2)
iter=202, frontier=11, popped=175 (14,3), depth=20, dist2goal=9.2
pushed 187 (15,3)
iter=203, frontier=11, popped=273 (20,19), depth=20, dist2goal=9.0
iter=204, frontier=10, popped=274 (20,20), depth=20, dist2goal=10.0
iter=205, frontier=9, popped=272 (20,18), depth=20, dist2goal=8.0
iter=206, frontier=8, popped=189 (15,12), depth=20, dist2goal=5.4
iter=207, frontier=7, popped=216 (17,13), depth=20, dist2goal=4.2
iter=208, frontier=6, popped=215 (17,12), depth=20, dist2goal=3.6
iter=209, frontier=5, popped=231 (18,15), depth=20, dist2goal=5.4
pushed 249 (19,15)
pushed 268 (20,14)
iter=210, frontier=6, popped=250 (19,16), depth=20, dist2goal=6.1
pushed 270 (20,16)
iter=211, frontier=6, popped=271 (20,17), depth=20, dist2goal=7.0
iter=212, frontier=5, popped=160 (13,1), depth=21, dist2goal=11.4
pushed 173 (14,1)
iter=213, frontier=5, popped=174 (14,2), depth=21, dist2goal=10.0
pushed 186 (15,2)
iter=214, frontier=5, popped=187 (15,3), depth=21, dist2goal=8.6
pushed 200 (16,3)
iter=215, frontier=5, popped=249 (19,15), depth=21, dist2goal=5.1
pushed 269 (20,15)
iter=216, frontier=5, popped=268 (20,14), depth=21, dist2goal=4.0
pushed 267 (20,13)
pushed 248 (19,13)
iter=217, frontier=6, popped=270 (20,16), depth=21, dist2goal=6.0
iter=218, frontier=5, popped=173 (14,1), depth=22, dist2goal=10.8
pushed 185 (15,1)
iter=219, frontier=5, popped=186 (15,2), depth=22, dist2goal=9.4
pushed 199 (16,2)
iter=220, frontier=5, popped=200 (16,3), depth=22, dist2goal=8.1
pushed 213 (17,3)
iter=221, frontier=5, popped=269 (20,15), depth=22, dist2goal=5.0

iter=222, frontier=4, popped=267 (20,13), depth=22, dist2goal=3.0
pushed 266 (20,12)
pushed 247 (19,12)
iter=223, frontier=5, popped=248 (19,13), depth=22, dist2goal=3.2
iter=224, frontier=4, popped=185 (15,1), depth=23, dist2goal=10.3
pushed 198 (16,1)
iter=225, frontier=4, popped=199 (16,2), depth=23, dist2goal=8.9
pushed 212 (17,2)
iter=226, frontier=4, popped=213 (17,3), depth=23, dist2goal=7.6
pushed 225 (18,3)
pushed 226 (18,4)
pushed 227 (18,5)
iter=227, frontier=6, popped=266 (20,12), depth=23, dist2goal=2.0
pushed 265 (20,11)
pushed 246 (19,11)
iter=228, frontier=7, popped=247 (19,12), depth=23, dist2goal=2.2
iter=229, frontier=6, popped=198 (16,1), depth=24, dist2goal=9.8
pushed 211 (17,1)
iter=230, frontier=6, popped=212 (17,2), depth=24, dist2goal=8.5
pushed 224 (18,2)
iter=231, frontier=6, popped=225 (18,3), depth=24, dist2goal=7.3
pushed 239 (19,3)
pushed 240 (19,4)
iter=232, frontier=7, popped=226 (18,4), depth=24, dist2goal=6.3
pushed 241 (19,5)
iter=233, frontier=7, popped=227 (18,5), depth=24, dist2goal=5.4
pushed 228 (18,6)
pushed 242 (19,6)
pushed 214 (17,8)
iter=234, frontier=9, popped=265 (20,11), depth=24, dist2goal=1.0
pushed 264 (20,10)
pushed 245 (19,10)
iter=235, frontier=10, popped=246 (19,11), depth=24, dist2goal=1.4
iter=236, frontier=9, popped=211 (17,1), depth=25, dist2goal=9.5
pushed 223 (18,1)
iter=237, frontier=9, popped=224 (18,2), depth=25, dist2goal=8.2
pushed 238 (19,2)
iter=238, frontier=9, popped=239 (19,3), depth=25, dist2goal=7.1
pushed 257 (20,3)
pushed 258 (20,4)
iter=239, frontier=10, popped=240 (19,4), depth=25, dist2goal=6.1
pushed 259 (20,5)
iter=240, frontier=10, popped=241 (19,5), depth=25, dist2goal=5.1
pushed 260 (20,6)
iter=241, frontier=10, popped=228 (18,6), depth=25, dist2goal=4.5
pushed 229 (18,7)
pushed 243 (19,7)
iter=242, frontier=11, popped=242 (19,6), depth=25, dist2goal=4.1
pushed 261 (20,7)

iter=243, frontier=11, popped=214 (17,8), depth=25, dist2goal=3.6

pushed 201 (16,8)

pushed 230 (18,8)

pushed 202 (16,9)

pushed 203 (16,10)

iter=244, frontier=14, popped=264 (20,10), depth=25, dist2goal=0.0

=====

Solution path:

1 10

1 11

1 12

1 13

2 14

3 15

4 15

5 15

6 16

7 17

8 18

11 19

12 19

13 19

14 17

14 16

14 15

15 15

15 14

16 14

18 15

20 14

20 13

20 12

20 11

20 10

Search algorithm = BFS

Total iterations = 244

Max frontier size = 25

Vertices visited = 257/275

Path length = 25

Vertices=275, edges=641

Start=(1,10), goal=(20,10), vertices: 9 and 264

iter=1, frontier=0, popped=9 (1,10), depth=0, dist2goal=19.0

pushed 8 (1,9)

pushed 10 (1,11)

pushed 29 (2,10)

pushed 30 (2,11)

iter=2, frontier=3, popped=30 (2,11), depth=1, dist2goal=18.0

pushed 31 (2,12)

pushed 50 (3,11)

pushed 51 (3,12)

iter=3, frontier=5, popped=51 (3,12), depth=2, dist2goal=17.1

pushed 52 (3,13)

pushed 68 (4,10)

iter=4, frontier=6, popped=68 (4,10), depth=3, dist2goal=16.0

pushed 67 (4,9)

pushed 49 (3,10)

pushed 48 (3,9)

iter=5, frontier=8, popped=48 (3,9), depth=4, dist2goal=17.0

pushed 47 (3,8)

pushed 28 (2,9)

pushed 27 (2,8)

iter=6, frontier=10, popped=27 (2,8), depth=5, dist2goal=18.1

pushed 26 (2,7)

pushed 7 (1,8)

pushed 6 (1,7)

iter=7, frontier=12, popped=6 (1,7), depth=6, dist2goal=19.2

pushed 5 (1,6)

iter=8, frontier=12, popped=5 (1,6), depth=7, dist2goal=19.4

pushed 4 (1,5)

pushed 25 (2,6)

iter=9, frontier=13, popped=25 (2,6), depth=8, dist2goal=18.4

pushed 24 (2,5)

pushed 45 (3,6)

pushed 46 (3,7)

iter=10, frontier=15, popped=46 (3,7), depth=9, dist2goal=17.3

pushed 65 (4,7)

pushed 66 (4,8)

iter=11, frontier=16, popped=66 (4,8), depth=10, dist2goal=16.1

pushed 78 (5,8)

iter=12, frontier=16, popped=78 (5,8), depth=11, dist2goal=15.1

pushed 90 (6,8)

iter=13, frontier=16, popped=90 (6,8), depth=12, dist2goal=14.1

pushed 104 (7,8)

iter=14, frontier=16, popped=104 (7,8), depth=13, dist2goal=13.2

pushed 103 (7,7)

pushed 105 (7,9)

pushed 118 (8,8)

pushed 119 (8,9)

iter=15, frontier=19, popped=119 (8,9), depth=14, dist2goal=12.0
pushed 120 (8,10)
pushed 136 (9,9)
pushed 137 (9,10)
iter=16, frontier=21, popped=137 (9,10), depth=15, dist2goal=11.0
pushed 138 (9,11)
iter=17, frontier=21, popped=138 (9,11), depth=16, dist2goal=11.0
pushed 139 (9,12)
pushed 121 (8,11)
iter=18, frontier=22, popped=121 (8,11), depth=17, dist2goal=12.0
pushed 122 (8,12)
pushed 106 (7,10)
iter=19, frontier=23, popped=106 (7,10), depth=18, dist2goal=13.0
iter=20, frontier=22, popped=122 (8,12), depth=18, dist2goal=12.2
pushed 123 (8,13)
pushed 140 (9,13)
iter=21, frontier=23, popped=140 (9,13), depth=19, dist2goal=11.4
pushed 141 (9,14)
iter=22, frontier=23, popped=141 (9,14), depth=20, dist2goal=11.7
pushed 142 (9,15)
iter=23, frontier=23, popped=142 (9,15), depth=21, dist2goal=12.1
pushed 124 (8,15)
iter=24, frontier=23, popped=124 (8,15), depth=22, dist2goal=13.0
pushed 125 (8,16)
pushed 107 (7,15)
iter=25, frontier=24, popped=107 (7,15), depth=23, dist2goal=13.9
pushed 108 (7,16)
pushed 93 (6,15)
pushed 92 (6,14)
iter=26, frontier=26, popped=92 (6,14), depth=24, dist2goal=14.6
pushed 91 (6,13)
pushed 80 (5,14)
pushed 79 (5,13)
iter=27, frontier=28, popped=79 (5,13), depth=25, dist2goal=15.3
iter=28, frontier=27, popped=80 (5,14), depth=25, dist2goal=15.5
pushed 81 (5,15)
iter=29, frontier=27, popped=81 (5,15), depth=26, dist2goal=15.8
pushed 82 (5,16)
pushed 69 (4,15)
pushed 94 (6,16)
iter=30, frontier=29, popped=94 (6,16), depth=27, dist2goal=15.2
pushed 95 (6,17)
pushed 109 (7,17)
iter=31, frontier=30, popped=109 (7,17), depth=28, dist2goal=14.8
pushed 110 (7,18)
pushed 126 (8,17)
pushed 127 (8,18)
iter=32, frontier=32, popped=127 (8,18), depth=29, dist2goal=14.4
pushed 128 (8,19)

pushed 143 (9,19)
pushed 148 (10,19)
pushed 153 (11,19)
iter=33, frontier=35, popped=153 (11,19), depth=30, dist2goal=12.7
pushed 154 (11,20)
pushed 158 (12,19)
pushed 159 (12,20)
iter=34, frontier=37, popped=159 (12,20), depth=31, dist2goal=12.8
pushed 172 (13,20)
iter=35, frontier=37, popped=172 (13,20), depth=32, dist2goal=12.2
pushed 171 (13,19)
pushed 184 (14,20)
iter=36, frontier=38, popped=184 (14,20), depth=33, dist2goal=11.7
pushed 183 (14,19)
pushed 197 (15,20)
iter=37, frontier=39, popped=197 (15,20), depth=34, dist2goal=11.2
pushed 196 (15,19)
pushed 210 (16,20)
iter=38, frontier=40, popped=210 (16,20), depth=35, dist2goal=10.8
pushed 209 (16,19)
pushed 222 (17,20)
iter=39, frontier=41, popped=222 (17,20), depth=36, dist2goal=10.4
pushed 221 (17,19)
pushed 236 (18,20)
iter=40, frontier=42, popped=236 (18,20), depth=37, dist2goal=10.2
pushed 235 (18,19)
pushed 254 (19,20)
iter=41, frontier=43, popped=254 (19,20), depth=38, dist2goal=10.0
pushed 253 (19,19)
pushed 274 (20,20)
iter=42, frontier=44, popped=274 (20,20), depth=39, dist2goal=10.0
pushed 273 (20,19)
iter=43, frontier=44, popped=273 (20,19), depth=40, dist2goal=9.0
pushed 272 (20,18)
pushed 252 (19,18)
iter=44, frontier=45, popped=252 (19,18), depth=41, dist2goal=8.1
pushed 251 (19,17)
pushed 234 (18,18)
pushed 233 (18,17)
iter=45, frontier=47, popped=233 (18,17), depth=42, dist2goal=7.3
pushed 232 (18,16)
pushed 219 (17,17)
pushed 218 (17,16)
iter=46, frontier=49, popped=218 (17,16), depth=43, dist2goal=6.7
pushed 217 (17,15)
pushed 206 (16,16)
pushed 205 (16,15)
iter=47, frontier=51, popped=205 (16,15), depth=44, dist2goal=6.4
pushed 204 (16,14)

pushed 192 (15,15)
pushed 191 (15,14)
iter=48, frontier=53, popped=191 (15,14), depth=45, dist2goal=6.4
pushed 190 (15,13)
iter=49, frontier=53, popped=190 (15,13), depth=46, dist2goal=5.8
pushed 189 (15,12)
iter=50, frontier=53, popped=189 (15,12), depth=47, dist2goal=5.4
iter=51, frontier=52, popped=192 (15,15), depth=45, dist2goal=7.1
pushed 193 (15,16)
pushed 179 (14,15)
iter=52, frontier=53, popped=179 (14,15), depth=46, dist2goal=7.8
pushed 180 (14,16)
pushed 170 (13,15)
iter=53, frontier=54, popped=170 (13,15), depth=47, dist2goal=8.6
iter=54, frontier=53, popped=180 (14,16), depth=47, dist2goal=8.5
pushed 181 (14,17)
pushed 194 (15,17)
iter=55, frontier=54, popped=194 (15,17), depth=48, dist2goal=8.6
pushed 195 (15,18)
pushed 207 (16,17)
pushed 208 (16,18)
iter=56, frontier=56, popped=208 (16,18), depth=49, dist2goal=8.9
pushed 220 (17,18)
iter=57, frontier=56, popped=220 (17,18), depth=50, dist2goal=8.5
iter=58, frontier=55, popped=207 (16,17), depth=49, dist2goal=8.1
iter=59, frontier=54, popped=195 (15,18), depth=49, dist2goal=9.4
pushed 182 (14,18)
iter=60, frontier=54, popped=182 (14,18), depth=50, dist2goal=10.0
iter=61, frontier=53, popped=181 (14,17), depth=48, dist2goal=9.2
iter=62, frontier=52, popped=193 (15,16), depth=46, dist2goal=7.8
iter=63, frontier=51, popped=204 (16,14), depth=45, dist2goal=5.7
pushed 216 (17,13)
pushed 215 (17,12)
pushed 231 (18,15)
iter=64, frontier=53, popped=231 (18,15), depth=46, dist2goal=5.4
pushed 249 (19,15)
pushed 250 (19,16)
pushed 268 (20,14)
iter=65, frontier=55, popped=268 (20,14), depth=47, dist2goal=4.0
pushed 269 (20,15)
pushed 267 (20,13)
pushed 248 (19,13)
iter=66, frontier=57, popped=248 (19,13), depth=48, dist2goal=3.2
pushed 247 (19,12)
iter=67, frontier=57, popped=247 (19,12), depth=49, dist2goal=2.2
pushed 246 (19,11)
pushed 266 (20,12)
iter=68, frontier=58, popped=266 (20,12), depth=50, dist2goal=2.0
pushed 265 (20,11)

iter=69, frontier=58, popped=265 (20,11), depth=51, dist2goal=1.0
pushed 264 (20,10)
pushed 245 (19,10)
iter=70, frontier=59, popped=245 (19,10), depth=52, dist2goal=1.0
pushed 263 (20,9)
iter=71, frontier=59, popped=263 (20,9), depth=53, dist2goal=1.0
pushed 262 (20,8)
pushed 244 (19,8)
iter=72, frontier=60, popped=244 (19,8), depth=54, dist2goal=2.2
pushed 243 (19,7)
pushed 230 (18,8)
pushed 229 (18,7)
iter=73, frontier=62, popped=229 (18,7), depth=55, dist2goal=3.6
pushed 228 (18,6)
pushed 214 (17,8)
iter=74, frontier=63, popped=214 (17,8), depth=56, dist2goal=3.6
pushed 201 (16,8)
pushed 202 (16,9)
pushed 203 (16,10)
pushed 227 (18,5)
iter=75, frontier=66, popped=227 (18,5), depth=57, dist2goal=5.4
pushed 226 (18,4)
pushed 241 (19,5)
pushed 242 (19,6)
pushed 213 (17,3)
iter=76, frontier=69, popped=213 (17,3), depth=58, dist2goal=7.6
pushed 212 (17,2)
pushed 200 (16,3)
pushed 225 (18,3)
pushed 199 (16,2)
iter=77, frontier=72, popped=199 (16,2), depth=59, dist2goal=8.9
pushed 198 (16,1)
pushed 186 (15,2)
pushed 185 (15,1)
iter=78, frontier=74, popped=185 (15,1), depth=60, dist2goal=10.3
pushed 173 (14,1)
iter=79, frontier=74, popped=173 (14,1), depth=61, dist2goal=10.8
pushed 174 (14,2)
pushed 160 (13,1)
iter=80, frontier=75, popped=160 (13,1), depth=62, dist2goal=11.4
pushed 161 (13,2)
pushed 155 (12,1)
iter=81, frontier=76, popped=155 (12,1), depth=63, dist2goal=12.0
pushed 156 (12,2)
pushed 150 (11,1)
iter=82, frontier=77, popped=150 (11,1), depth=64, dist2goal=12.7
pushed 151 (11,2)
pushed 145 (10,1)
iter=83, frontier=78, popped=145 (10,1), depth=65, dist2goal=13.5

pushed 146 (10,2)
pushed 130 (9,1)
iter=84, frontier=79, popped=130 (9,1), depth=66, dist2goal=14.2
pushed 131 (9,2)
pushed 113 (8,1)
iter=85, frontier=80, popped=113 (8,1), depth=67, dist2goal=15.0
pushed 114 (8,2)
pushed 99 (7,1)
iter=86, frontier=81, popped=99 (7,1), depth=68, dist2goal=15.8
pushed 100 (7,2)
pushed 87 (6,1)
iter=87, frontier=82, popped=87 (6,1), depth=69, dist2goal=16.6
pushed 88 (6,2)
pushed 75 (5,1)
iter=88, frontier=83, popped=75 (5,1), depth=70, dist2goal=17.5
pushed 76 (5,2)
pushed 59 (4,1)
iter=89, frontier=84, popped=59 (4,1), depth=71, dist2goal=18.4
pushed 60 (4,2)
pushed 40 (3,1)
iter=90, frontier=85, popped=40 (3,1), depth=72, dist2goal=19.2
pushed 41 (3,2)
pushed 20 (2,1)
iter=91, frontier=86, popped=20 (2,1), depth=73, dist2goal=20.1
pushed 21 (2,2)
pushed 0 (1,1)
iter=92, frontier=87, popped=0 (1,1), depth=74, dist2goal=21.0
pushed 1 (1,2)
iter=93, frontier=87, popped=1 (1,2), depth=75, dist2goal=20.6
pushed 2 (1,3)
pushed 22 (2,3)
iter=94, frontier=88, popped=22 (2,3), depth=76, dist2goal=19.3
pushed 23 (2,4)
pushed 42 (3,3)
pushed 43 (3,4)
iter=95, frontier=90, popped=43 (3,4), depth=77, dist2goal=18.0
pushed 44 (3,5)
pushed 62 (4,4)
pushed 63 (4,5)
iter=96, frontier=92, popped=63 (4,5), depth=78, dist2goal=16.8
pushed 64 (4,6)
iter=97, frontier=92, popped=64 (4,6), depth=79, dist2goal=16.5
iter=98, frontier=91, popped=62 (4,4), depth=78, dist2goal=17.1
pushed 61 (4,3)
iter=99, frontier=91, popped=61 (4,3), depth=79, dist2goal=17.5
pushed 77 (5,3)
iter=100, frontier=91, popped=77 (5,3), depth=80, dist2goal=16.6
pushed 89 (6,3)
iter=101, frontier=91, popped=89 (6,3), depth=81, dist2goal=15.7

pushed 101 (7,3)
iter=102, frontier=91, popped=101 (7,3), depth=82, dist2goal=14.8
pushed 115 (8,3)
iter=103, frontier=91, popped=115 (8,3), depth=83, dist2goal=13.9
pushed 132 (9,3)
iter=104, frontier=91, popped=132 (9,3), depth=84, dist2goal=13.0
pushed 147 (10,3)
iter=105, frontier=91, popped=147 (10,3), depth=85, dist2goal=12.2
pushed 152 (11,3)
iter=106, frontier=91, popped=152 (11,3), depth=86, dist2goal=11.4
pushed 157 (12,3)
iter=107, frontier=91, popped=157 (12,3), depth=87, dist2goal=10.6
pushed 162 (13,3)
iter=108, frontier=91, popped=162 (13,3), depth=88, dist2goal=9.9
pushed 175 (14,3)
iter=109, frontier=91, popped=175 (14,3), depth=89, dist2goal=9.2
pushed 187 (15,3)
iter=110, frontier=91, popped=187 (15,3), depth=90, dist2goal=8.6
iter=111, frontier=90, popped=44 (3,5), depth=78, dist2goal=17.7
iter=112, frontier=89, popped=42 (3,3), depth=77, dist2goal=18.4
iter=113, frontier=88, popped=23 (2,4), depth=77, dist2goal=19.0
pushed 3 (1,4)
iter=114, frontier=88, popped=3 (1,4), depth=78, dist2goal=19.9
iter=115, frontier=87, popped=2 (1,3), depth=76, dist2goal=20.2
iter=116, frontier=86, popped=21 (2,2), depth=74, dist2goal=19.7
iter=117, frontier=85, popped=41 (3,2), depth=73, dist2goal=18.8
iter=118, frontier=84, popped=60 (4,2), depth=72, dist2goal=17.9
iter=119, frontier=83, popped=76 (5,2), depth=71, dist2goal=17.0
iter=120, frontier=82, popped=88 (6,2), depth=70, dist2goal=16.1
iter=121, frontier=81, popped=100 (7,2), depth=69, dist2goal=15.3
iter=122, frontier=80, popped=114 (8,2), depth=68, dist2goal=14.4
iter=123, frontier=79, popped=131 (9,2), depth=67, dist2goal=13.6
iter=124, frontier=78, popped=146 (10,2), depth=66, dist2goal=12.8
iter=125, frontier=77, popped=151 (11,2), depth=65, dist2goal=12.0
iter=126, frontier=76, popped=156 (12,2), depth=64, dist2goal=11.3
iter=127, frontier=75, popped=161 (13,2), depth=63, dist2goal=10.6
iter=128, frontier=74, popped=174 (14,2), depth=62, dist2goal=10.0
iter=129, frontier=73, popped=186 (15,2), depth=60, dist2goal=9.4
iter=130, frontier=72, popped=198 (16,1), depth=60, dist2goal=9.8
pushed 211 (17,1)
iter=131, frontier=72, popped=211 (17,1), depth=61, dist2goal=9.5
pushed 223 (18,1)
pushed 224 (18,2)
iter=132, frontier=73, popped=224 (18,2), depth=62, dist2goal=8.2
pushed 238 (19,2)
pushed 239 (19,3)
iter=133, frontier=74, popped=239 (19,3), depth=63, dist2goal=7.1
pushed 240 (19,4)
pushed 257 (20,3)

pushed 258 (20,4)
iter=134, frontier=76, popped=258 (20,4), depth=64, dist2goal=6.0
pushed 259 (20,5)
iter=135, frontier=76, popped=259 (20,5), depth=65, dist2goal=5.0
pushed 260 (20,6)
iter=136, frontier=76, popped=260 (20,6), depth=66, dist2goal=4.0
pushed 261 (20,7)
iter=137, frontier=76, popped=261 (20,7), depth=67, dist2goal=3.0
iter=138, frontier=75, popped=257 (20,3), depth=64, dist2goal=7.0
pushed 256 (20,2)
iter=139, frontier=75, popped=256 (20,2), depth=65, dist2goal=8.0
pushed 255 (20,1)
pushed 237 (19,1)
iter=140, frontier=76, popped=237 (19,1), depth=66, dist2goal=9.1
iter=141, frontier=75, popped=255 (20,1), depth=66, dist2goal=9.0
iter=142, frontier=74, popped=240 (19,4), depth=64, dist2goal=6.1
iter=143, frontier=73, popped=238 (19,2), depth=63, dist2goal=8.1
iter=144, frontier=72, popped=223 (18,1), depth=62, dist2goal=9.2
iter=145, frontier=71, popped=225 (18,3), depth=59, dist2goal=7.3
iter=146, frontier=70, popped=200 (16,3), depth=59, dist2goal=8.1
iter=147, frontier=69, popped=212 (17,2), depth=59, dist2goal=8.5
iter=148, frontier=68, popped=242 (19,6), depth=58, dist2goal=4.1
iter=149, frontier=67, popped=241 (19,5), depth=58, dist2goal=5.1
iter=150, frontier=66, popped=226 (18,4), depth=58, dist2goal=6.3
iter=151, frontier=65, popped=203 (16,10), depth=57, dist2goal=4.0
pushed 188 (15,8)
iter=152, frontier=65, popped=188 (15,8), depth=58, dist2goal=5.4
pushed 178 (14,8)
pushed 177 (14,7)
iter=153, frontier=66, popped=177 (14,7), depth=59, dist2goal=6.7
pushed 176 (14,6)
pushed 164 (13,7)
pushed 163 (13,6)
iter=154, frontier=68, popped=163 (13,6), depth=60, dist2goal=8.1
iter=155, frontier=67, popped=164 (13,7), depth=60, dist2goal=7.6
pushed 165 (13,8)
iter=156, frontier=67, popped=165 (13,8), depth=61, dist2goal=7.3
iter=157, frontier=66, popped=176 (14,6), depth=60, dist2goal=7.2
iter=158, frontier=65, popped=178 (14,8), depth=59, dist2goal=6.3
iter=159, frontier=64, popped=202 (16,9), depth=57, dist2goal=4.1
iter=160, frontier=63, popped=201 (16,8), depth=57, dist2goal=4.5
iter=161, frontier=62, popped=228 (18,6), depth=56, dist2goal=4.5
iter=162, frontier=61, popped=230 (18,8), depth=55, dist2goal=2.8
iter=163, frontier=60, popped=243 (19,7), depth=55, dist2goal=3.2
iter=164, frontier=59, popped=262 (20,8), depth=54, dist2goal=2.0

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Solution path:

1 10

2 11

3 12
4 10
3 9
2 8
1 7
1 6
2 6
3 7
4 8
5 8
6 8
7 8
8 9
9 10
9 11
8 11
8 12
9 13
9 14
9 15
8 15
7 15
6 14
5 14
5 15
6 16
7 17
8 18
11 19
12 20
13 20
14 20
15 20
16 20
17 20
18 20
19 20
20 20
20 19
19 18
18 17
17 16
16 15
16 14
18 15
20 14
19 13
19 12
20 12

20 11
20 10
Search algorithm = DFS
Total iterations = 164
Max frontier size = 93
Vertices visited = 222/275
Path length = 52

Vertices=275, edges=641
Start=(1,10), goal=(20,10), vertices: 9 and 264
iter=1, frontier=0, popped=9 (1,10), depth=0, dist2goal=19.0
pushed 8 (1,9)
pushed 10 (1,11)
pushed 29 (2,10)
pushed 30 (2,11)
iter=2, frontier=3, popped=29 (2,10), depth=1, dist2goal=18.0
pushed 28 (2,9)
pushed 49 (3,10)
pushed 50 (3,11)
iter=3, frontier=5, popped=49 (3,10), depth=2, dist2goal=17.0
pushed 48 (3,9)
pushed 68 (4,10)
iter=4, frontier=6, popped=68 (4,10), depth=3, dist2goal=16.0
pushed 67 (4,9)
pushed 51 (3,12)
pushed 52 (3,13)
iter=5, frontier=8, popped=67 (4,9), depth=4, dist2goal=16.0
pushed 66 (4,8)
pushed 47 (3,8)
iter=6, frontier=9, popped=66 (4,8), depth=5, dist2goal=16.1
pushed 65 (4,7)
pushed 78 (5,8)
pushed 46 (3,7)
iter=7, frontier=11, popped=78 (5,8), depth=6, dist2goal=15.1
pushed 90 (6,8)
iter=8, frontier=11, popped=90 (6,8), depth=7, dist2goal=14.1
pushed 104 (7,8)
iter=9, frontier=11, popped=104 (7,8), depth=8, dist2goal=13.2
pushed 103 (7,7)
pushed 105 (7,9)

pushed 118 (8,8)
pushed 119 (8,9)
iter=10, frontier=14, popped=119 (8,9), depth=9, dist2goal=12.0
pushed 120 (8,10)
pushed 136 (9,9)
pushed 137 (9,10)
iter=11, frontier=16, popped=137 (9,10), depth=10, dist2goal=11.0
pushed 138 (9,11)
iter=12, frontier=16, popped=136 (9,9), depth=10, dist2goal=11.0
pushed 135 (9,8)
iter=13, frontier=16, popped=138 (9,11), depth=11, dist2goal=11.0
pushed 139 (9,12)
pushed 121 (8,11)
iter=14, frontier=17, popped=135 (9,8), depth=11, dist2goal=11.2
pushed 134 (9,7)
pushed 117 (8,7)
iter=15, frontier=18, popped=139 (9,12), depth=12, dist2goal=11.2
pushed 140 (9,13)
pushed 122 (8,12)
iter=16, frontier=19, popped=134 (9,7), depth=12, dist2goal=11.4
pushed 133 (9,6)
pushed 116 (8,6)
iter=17, frontier=20, popped=140 (9,13), depth=13, dist2goal=11.4
pushed 141 (9,14)
pushed 123 (8,13)
iter=18, frontier=21, popped=133 (9,6), depth=13, dist2goal=11.7
iter=19, frontier=20, popped=141 (9,14), depth=14, dist2goal=11.7
pushed 142 (9,15)
iter=20, frontier=20, popped=120 (8,10), depth=10, dist2goal=12.0
pushed 106 (7,10)
iter=21, frontier=20, popped=121 (8,11), depth=12, dist2goal=12.0
iter=22, frontier=19, popped=142 (9,15), depth=15, dist2goal=12.1
pushed 124 (8,15)
iter=23, frontier=19, popped=118 (8,8), depth=9, dist2goal=12.2
iter=24, frontier=18, popped=122 (8,12), depth=13, dist2goal=12.2
iter=25, frontier=17, popped=117 (8,7), depth=12, dist2goal=12.4
pushed 102 (7,6)
iter=26, frontier=17, popped=123 (8,13), depth=14, dist2goal=12.4
iter=27, frontier=16, popped=116 (8,6), depth=13, dist2goal=12.6
iter=28, frontier=15, popped=106 (7,10), depth=11, dist2goal=13.0
iter=29, frontier=14, popped=124 (8,15), depth=16, dist2goal=13.0
pushed 125 (8,16)
pushed 107 (7,15)
iter=30, frontier=15, popped=105 (7,9), depth=9, dist2goal=13.0
iter=31, frontier=14, popped=103 (7,7), depth=9, dist2goal=13.3
iter=32, frontier=13, popped=125 (8,16), depth=17, dist2goal=13.4
pushed 126 (8,17)
pushed 108 (7,16)
iter=33, frontier=14, popped=102 (7,6), depth=13, dist2goal=13.6

iter=34, frontier=13, popped=126 (8,17), depth=18, dist2goal=13.9
pushed 127 (8,18)
pushed 109 (7,17)
iter=35, frontier=14, popped=107 (7,15), depth=17, dist2goal=13.9
pushed 93 (6,15)
pushed 92 (6,14)
iter=36, frontier=15, popped=108 (7,16), depth=18, dist2goal=14.3
pushed 94 (6,16)
iter=37, frontier=15, popped=127 (8,18), depth=19, dist2goal=14.4
pushed 128 (8,19)
pushed 110 (7,18)
pushed 143 (9,19)
pushed 148 (10,19)
pushed 153 (11,19)
iter=38, frontier=19, popped=153 (11,19), depth=20, dist2goal=12.7
pushed 154 (11,20)
pushed 158 (12,19)
pushed 159 (12,20)
iter=39, frontier=21, popped=158 (12,19), depth=21, dist2goal=12.0
pushed 171 (13,19)
pushed 172 (13,20)
iter=40, frontier=22, popped=171 (13,19), depth=22, dist2goal=11.4
pushed 183 (14,19)
pushed 182 (14,18)
pushed 184 (14,20)
pushed 181 (14,17)
iter=41, frontier=25, popped=181 (14,17), depth=23, dist2goal=9.2
pushed 180 (14,16)
pushed 194 (15,17)
pushed 195 (15,18)
iter=42, frontier=27, popped=180 (14,16), depth=24, dist2goal=8.5
pushed 179 (14,15)
pushed 193 (15,16)
iter=43, frontier=28, popped=179 (14,15), depth=25, dist2goal=7.8
pushed 170 (13,15)
pushed 192 (15,15)
iter=44, frontier=29, popped=192 (15,15), depth=26, dist2goal=7.1
pushed 191 (15,14)
pushed 205 (16,15)
pushed 206 (16,16)
iter=45, frontier=31, popped=191 (15,14), depth=27, dist2goal=6.4
pushed 190 (15,13)
pushed 204 (16,14)
iter=46, frontier=32, popped=204 (16,14), depth=28, dist2goal=5.7
pushed 217 (17,15)
pushed 216 (17,13)
pushed 215 (17,12)
pushed 231 (18,15)
iter=47, frontier=35, popped=215 (17,12), depth=29, dist2goal=3.6

iter=48, frontier=34, popped=216 (17,13), depth=29, dist2goal=4.2
iter=49, frontier=33, popped=231 (18,15), depth=29, dist2goal=5.4
pushed 232 (18,16)
pushed 249 (19,15)
pushed 250 (19,16)
pushed 268 (20,14)
iter=50, frontier=36, popped=268 (20,14), depth=30, dist2goal=4.0
pushed 269 (20,15)
pushed 267 (20,13)
pushed 248 (19,13)
iter=51, frontier=38, popped=267 (20,13), depth=31, dist2goal=3.0
pushed 266 (20,12)
pushed 247 (19,12)
iter=52, frontier=39, popped=266 (20,12), depth=32, dist2goal=2.0
pushed 265 (20,11)
pushed 246 (19,11)
iter=53, frontier=40, popped=265 (20,11), depth=33, dist2goal=1.0
pushed 264 (20,10)
pushed 245 (19,10)

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Solution path:

1 10
2 10
3 10
4 10
4 9
4 8
5 8
6 8
7 8
8 9
9 10
9 11
9 12
9 13
9 14
9 15
8 15
8 16
8 17
8 18
11 19
12 19
13 19
14 17
14 16
14 15
15 15
15 14

16 14
18 15
20 14
20 13
20 12
20 11
20 10
Search algorithm = GBFS
Total iterations = 53
Max frontier size = 42
Vertices visited = 94/275
Path length = 34

Vertices=275, edges=641
Start=(1,10), goal=(20,10), vertices: 9 and 264
iter=1, frontier=0, popped=9 (1,10), depth=0, dist2goal=19.0
pushed 8 (1,9)
pushed 10 (1,11)
pushed 29 (2,10)
pushed 30 (2,11)
iter=2, frontier=3, popped=29 (2,10), depth=1, dist2goal=18.0
pushed 28 (2,9)
pushed 49 (3,10)
pushed 50 (3,11)
iter=3, frontier=5, popped=49 (3,10), depth=2, dist2goal=17.0
pushed 48 (3,9)
pushed 68 (4,10)
iter=4, frontier=6, popped=68 (4,10), depth=3, dist2goal=16.0
pushed 67 (4,9)
pushed 51 (3,12)
pushed 52 (3,13)
iter=5, frontier=8, popped=67 (4,9), depth=4, dist2goal=16.0
pushed 66 (4,8)
pushed 47 (3,8)
iter=6, frontier=9, popped=48 (3,9), depth=3, dist2goal=17.0
pushed 27 (2,8)
iter=7, frontier=9, popped=50 (3,11), depth=2, dist2goal=17.0
iter=8, frontier=8, popped=28 (2,9), depth=2, dist2goal=18.0
pushed 7 (1,8)
iter=9, frontier=8, popped=30 (2,11), depth=1, dist2goal=18.0
pushed 31 (2,12)
iter=10, frontier=8, popped=66 (4,8), depth=5, dist2goal=16.1

pushed 65 (4,7)
pushed 78 (5,8)
pushed 46 (3,7)
iter=11, frontier=10, popped=78 (5,8), depth=6, dist2goal=15.1
pushed 90 (6,8)
iter=12, frontier=10, popped=90 (6,8), depth=7, dist2goal=14.1
pushed 104 (7,8)
iter=13, frontier=10, popped=104 (7,8), depth=8, dist2goal=13.2
pushed 103 (7,7)
pushed 105 (7,9)
pushed 118 (8,8)
pushed 119 (8,9)
iter=14, frontier=13, popped=119 (8,9), depth=9, dist2goal=12.0
pushed 120 (8,10)
pushed 136 (9,9)
pushed 137 (9,10)
iter=15, frontier=15, popped=137 (9,10), depth=10, dist2goal=11.0
pushed 138 (9,11)
iter=16, frontier=15, popped=120 (8,10), depth=10, dist2goal=12.0
pushed 121 (8,11)
pushed 106 (7,10)
iter=17, frontier=16, popped=106 (7,10), depth=11, dist2goal=13.0
pushed 122 (8,12)
iter=18, frontier=16, popped=136 (9,9), depth=10, dist2goal=11.0
pushed 135 (9,8)
iter=19, frontier=16, popped=138 (9,11), depth=11, dist2goal=11.0
pushed 139 (9,12)
iter=20, frontier=16, popped=121 (8,11), depth=11, dist2goal=12.0
iter=21, frontier=15, popped=105 (7,9), depth=9, dist2goal=13.0
iter=22, frontier=14, popped=139 (9,12), depth=12, dist2goal=11.2
pushed 140 (9,13)
iter=23, frontier=14, popped=135 (9,8), depth=11, dist2goal=11.2
pushed 134 (9,7)
pushed 117 (8,7)
iter=24, frontier=15, popped=118 (8,8), depth=9, dist2goal=12.2
iter=25, frontier=14, popped=122 (8,12), depth=12, dist2goal=12.2
pushed 123 (8,13)
iter=26, frontier=14, popped=47 (3,8), depth=5, dist2goal=17.1
pushed 26 (2,7)
iter=27, frontier=14, popped=51 (3,12), depth=4, dist2goal=17.1
iter=28, frontier=13, popped=134 (9,7), depth=12, dist2goal=11.4
pushed 133 (9,6)
pushed 116 (8,6)
iter=29, frontier=14, popped=140 (9,13), depth=13, dist2goal=11.4
pushed 141 (9,14)
iter=30, frontier=14, popped=117 (8,7), depth=12, dist2goal=12.4
pushed 102 (7,6)
iter=31, frontier=14, popped=123 (8,13), depth=13, dist2goal=12.4
iter=32, frontier=13, popped=8 (1,9), depth=1, dist2goal=19.0

iter=33, frontier=12, popped=10 (1,11), depth=1, dist2goal=19.0
pushed 11 (1,12)
iter=34, frontier=12, popped=103 (7,7), depth=9, dist2goal=13.3
iter=35, frontier=11, popped=27 (2,8), depth=4, dist2goal=18.1
pushed 6 (1,7)
iter=36, frontier=11, popped=31 (2,12), depth=2, dist2goal=18.1
pushed 32 (2,13)
iter=37, frontier=11, popped=65 (4,7), depth=6, dist2goal=16.3
pushed 64 (4,6)
pushed 45 (3,6)
iter=38, frontier=12, popped=133 (9,6), depth=13, dist2goal=11.7
iter=39, frontier=11, popped=141 (9,14), depth=14, dist2goal=11.7
pushed 142 (9,15)
iter=40, frontier=11, popped=116 (8,6), depth=13, dist2goal=12.6
iter=41, frontier=10, popped=102 (7,6), depth=13, dist2goal=13.6
iter=42, frontier=9, popped=46 (3,7), depth=6, dist2goal=17.3
pushed 25 (2,6)
iter=43, frontier=9, popped=52 (3,13), depth=4, dist2goal=17.3
iter=44, frontier=8, popped=7 (1,8), depth=3, dist2goal=19.1
iter=45, frontier=7, popped=11 (1,12), depth=2, dist2goal=19.1
pushed 12 (1,13)
iter=46, frontier=7, popped=26 (2,7), depth=6, dist2goal=18.2
pushed 5 (1,6)
iter=47, frontier=7, popped=32 (2,13), depth=3, dist2goal=18.2
pushed 33 (2,14)
iter=48, frontier=7, popped=64 (4,6), depth=7, dist2goal=16.5
pushed 63 (4,5)
pushed 44 (3,5)
iter=49, frontier=8, popped=142 (9,15), depth=15, dist2goal=12.1
pushed 124 (8,15)
iter=50, frontier=8, popped=124 (8,15), depth=16, dist2goal=13.0
pushed 125 (8,16)
pushed 107 (7,15)
iter=51, frontier=9, popped=107 (7,15), depth=17, dist2goal=13.9
pushed 108 (7,16)
pushed 93 (6,15)
pushed 92 (6,14)
iter=52, frontier=11, popped=92 (6,14), depth=18, dist2goal=14.6
pushed 91 (6,13)
pushed 80 (5,14)
pushed 79 (5,13)
iter=53, frontier=13, popped=91 (6,13), depth=19, dist2goal=14.3
iter=54, frontier=12, popped=79 (5,13), depth=19, dist2goal=15.3
iter=55, frontier=11, popped=80 (5,14), depth=19, dist2goal=15.5
pushed 81 (5,15)
iter=56, frontier=11, popped=45 (3,6), depth=7, dist2goal=17.5
pushed 24 (2,5)
iter=57, frontier=11, popped=93 (6,15), depth=18, dist2goal=14.9
pushed 94 (6,16)

iter=58, frontier=11, popped=81 (5,15), depth=20, dist2goal=15.8
pushed 82 (5,16)
pushed 69 (4,15)
iter=59, frontier=12, popped=6 (1,7), depth=5, dist2goal=19.2
iter=60, frontier=11, popped=12 (1,13), depth=3, dist2goal=19.2
pushed 13 (1,14)
iter=61, frontier=11, popped=25 (2,6), depth=7, dist2goal=18.4
pushed 4 (1,5)
iter=62, frontier=11, popped=33 (2,14), depth=4, dist2goal=18.4
pushed 34 (2,15)
pushed 53 (3,15)
iter=63, frontier=12, popped=69 (4,15), depth=21, dist2goal=16.8
pushed 70 (4,16)
iter=64, frontier=12, popped=63 (4,5), depth=8, dist2goal=16.8
pushed 62 (4,4)
pushed 43 (3,4)
iter=65, frontier=13, popped=125 (8,16), depth=17, dist2goal=13.4
pushed 126 (8,17)
iter=66, frontier=13, popped=108 (7,16), depth=18, dist2goal=14.3
pushed 109 (7,17)
iter=67, frontier=13, popped=94 (6,16), depth=19, dist2goal=15.2
pushed 95 (6,17)
iter=68, frontier=13, popped=44 (3,5), depth=8, dist2goal=17.7
pushed 23 (2,4)
iter=69, frontier=13, popped=53 (3,15), depth=5, dist2goal=17.7
pushed 54 (3,16)
iter=70, frontier=13, popped=82 (5,16), depth=21, dist2goal=16.2
pushed 83 (5,17)
iter=71, frontier=13, popped=5 (1,6), depth=7, dist2goal=19.4
iter=72, frontier=12, popped=13 (1,14), depth=4, dist2goal=19.4
pushed 14 (1,15)
iter=73, frontier=12, popped=24 (2,5), depth=8, dist2goal=18.7
pushed 3 (1,4)
iter=74, frontier=12, popped=34 (2,15), depth=5, dist2goal=18.7
pushed 35 (2,16)
iter=75, frontier=12, popped=126 (8,17), depth=18, dist2goal=13.9
pushed 127 (8,18)
iter=76, frontier=12, popped=70 (4,16), depth=22, dist2goal=17.1
pushed 71 (4,17)
iter=77, frontier=12, popped=62 (4,4), depth=9, dist2goal=17.1
pushed 61 (4,3)
pushed 42 (3,3)
iter=78, frontier=13, popped=109 (7,17), depth=19, dist2goal=14.8
pushed 110 (7,18)
iter=79, frontier=13, popped=95 (6,17), depth=20, dist2goal=15.7
pushed 96 (6,18)
iter=80, frontier=13, popped=43 (3,4), depth=9, dist2goal=18.0
pushed 22 (2,3)
iter=81, frontier=13, popped=54 (3,16), depth=6, dist2goal=18.0

pushed 55 (3,17)
iter=82, frontier=13, popped=83 (5,17), depth=22, dist2goal=16.6
pushed 84 (5,18)
iter=83, frontier=13, popped=4 (1,5), depth=8, dist2goal=19.6
iter=84, frontier=12, popped=14 (1,15), depth=5, dist2goal=19.6
pushed 15 (1,16)
iter=85, frontier=12, popped=127 (8,18), depth=19, dist2goal=14.4
pushed 128 (8,19)
pushed 143 (9,19)
pushed 148 (10,19)
pushed 153 (11,19)
iter=86, frontier=15, popped=23 (2,4), depth=9, dist2goal=19.0
pushed 2 (1,3)
iter=87, frontier=15, popped=35 (2,16), depth=6, dist2goal=19.0
pushed 36 (2,17)
iter=88, frontier=15, popped=71 (4,17), depth=23, dist2goal=17.5
pushed 72 (4,18)
iter=89, frontier=15, popped=61 (4,3), depth=10, dist2goal=17.5
pushed 60 (4,2)
pushed 77 (5,3)
pushed 41 (3,2)
iter=90, frontier=17, popped=77 (5,3), depth=11, dist2goal=16.6
pushed 76 (5,2)
pushed 89 (6,3)
iter=91, frontier=18, popped=89 (6,3), depth=12, dist2goal=15.7
pushed 88 (6,2)
pushed 101 (7,3)
iter=92, frontier=19, popped=101 (7,3), depth=13, dist2goal=14.8
pushed 100 (7,2)
pushed 115 (8,3)
iter=93, frontier=20, popped=115 (8,3), depth=14, dist2goal=13.9
pushed 114 (8,2)
pushed 132 (9,3)
iter=94, frontier=21, popped=132 (9,3), depth=15, dist2goal=13.0
pushed 131 (9,2)
pushed 147 (10,3)
iter=95, frontier=22, popped=147 (10,3), depth=16, dist2goal=12.2
pushed 146 (10,2)
pushed 152 (11,3)
iter=96, frontier=23, popped=152 (11,3), depth=17, dist2goal=11.4
pushed 151 (11,2)
pushed 157 (12,3)
iter=97, frontier=24, popped=157 (12,3), depth=18, dist2goal=10.6
pushed 156 (12,2)
pushed 162 (13,3)
iter=98, frontier=25, popped=162 (13,3), depth=19, dist2goal=9.9
pushed 161 (13,2)
pushed 175 (14,3)
iter=99, frontier=26, popped=175 (14,3), depth=20, dist2goal=9.2

pushed 174 (14,2)
pushed 187 (15,3)
iter=100, frontier=27, popped=187 (15,3), depth=21, dist2goal=8.6
pushed 186 (15,2)
pushed 200 (16,3)
iter=101, frontier=28, popped=200 (16,3), depth=22, dist2goal=8.1
pushed 199 (16,2)
pushed 213 (17,3)
iter=102, frontier=29, popped=146 (10,2), depth=17, dist2goal=12.8
pushed 145 (10,1)
pushed 130 (9,1)
iter=103, frontier=30, popped=151 (11,2), depth=18, dist2goal=12.0
pushed 150 (11,1)
iter=104, frontier=30, popped=131 (9,2), depth=16, dist2goal=13.6
pushed 113 (8,1)
iter=105, frontier=30, popped=156 (12,2), depth=19, dist2goal=11.3
pushed 155 (12,1)
iter=106, frontier=30, popped=161 (13,2), depth=20, dist2goal=10.6
pushed 160 (13,1)
iter=107, frontier=30, popped=114 (8,2), depth=15, dist2goal=14.4
pushed 99 (7,1)
iter=108, frontier=30, popped=213 (17,3), depth=23, dist2goal=7.6
pushed 212 (17,2)
pushed 225 (18,3)
pushed 226 (18,4)
pushed 227 (18,5)
iter=109, frontier=33, popped=227 (18,5), depth=24, dist2goal=5.4
pushed 228 (18,6)
pushed 241 (19,5)
pushed 242 (19,6)
pushed 214 (17,8)
iter=110, frontier=36, popped=214 (17,8), depth=25, dist2goal=3.6
pushed 201 (16,8)
pushed 230 (18,8)
pushed 202 (16,9)
pushed 229 (18,7)
pushed 203 (16,10)
iter=111, frontier=40, popped=203 (16,10), depth=26, dist2goal=4.0
pushed 188 (15,8)
iter=112, frontier=40, popped=202 (16,9), depth=26, dist2goal=4.1
iter=113, frontier=39, popped=188 (15,8), depth=27, dist2goal=5.4
pushed 178 (14,8)
pushed 177 (14,7)
iter=114, frontier=40, popped=178 (14,8), depth=28, dist2goal=6.3
pushed 165 (13,8)
pushed 164 (13,7)
iter=115, frontier=41, popped=165 (13,8), depth=29, dist2goal=7.3
iter=116, frontier=40, popped=201 (16,8), depth=26, dist2goal=4.5
iter=117, frontier=39, popped=230 (18,8), depth=26, dist2goal=2.8

pushed 244 (19,8)
iter=118, frontier=39, popped=164 (13,7), depth=29, dist2goal=7.6
pushed 163 (13,6)
iter=119, frontier=39, popped=177 (14,7), depth=28, dist2goal=6.7
pushed 176 (14,6)
iter=120, frontier=39, popped=244 (19,8), depth=27, dist2goal=2.2
pushed 243 (19,7)
pushed 262 (20,8)
pushed 263 (20,9)
iter=121, frontier=41, popped=263 (20,9), depth=28, dist2goal=1.0
pushed 264 (20,10)
pushed 245 (19,10)

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Solution path:

1 10
2 10
3 10
4 10
4 9
4 8
4 7
4 6
4 5
4 4
4 3
5 3
6 3
7 3
8 3
9 3
10 3
11 3
12 3
13 3
14 3
15 3
16 3
17 3
18 5
17 8
18 8
19 8
20 9
20 10

Search algorithm = ASTAR

Total iterations = 121

Max frontier size = 43

Vertices visited = 163/275

Path length = 29

Vertices=275, edges=641
Start=(10,1), goal=(10,20), vertices: 145 and 149
iter=1, frontier=0, popped=145 (10,1), depth=0, dist2goal=19.0
pushed 146 (10,2)
pushed 130 (9,1)
pushed 150 (11,1)
pushed 151 (11,2)
iter=2, frontier=3, popped=146 (10,2), depth=1, dist2goal=18.0
pushed 147 (10,3)
pushed 131 (9,2)
pushed 152 (11,3)
iter=3, frontier=5, popped=130 (9,1), depth=1, dist2goal=19.0
pushed 113 (8,1)
iter=4, frontier=5, popped=150 (11,1), depth=1, dist2goal=19.0
pushed 155 (12,1)
pushed 156 (12,2)
iter=5, frontier=6, popped=151 (11,2), depth=1, dist2goal=18.0
pushed 157 (12,3)
iter=6, frontier=6, popped=147 (10,3), depth=2, dist2goal=17.0
pushed 132 (9,3)
iter=7, frontier=6, popped=131 (9,2), depth=2, dist2goal=18.0
pushed 114 (8,2)
iter=8, frontier=6, popped=152 (11,3), depth=2, dist2goal=17.0
iter=9, frontier=5, popped=113 (8,1), depth=2, dist2goal=19.1
pushed 99 (7,1)
iter=10, frontier=5, popped=155 (12,1), depth=2, dist2goal=19.1
pushed 160 (13,1)
pushed 161 (13,2)
iter=11, frontier=6, popped=156 (12,2), depth=2, dist2goal=18.1
pushed 162 (13,3)
iter=12, frontier=6, popped=157 (12,3), depth=2, dist2goal=17.1
iter=13, frontier=5, popped=132 (9,3), depth=3, dist2goal=17.0
pushed 115 (8,3)
iter=14, frontier=5, popped=114 (8,2), depth=3, dist2goal=18.1
pushed 100 (7,2)
iter=15, frontier=5, popped=99 (7,1), depth=3, dist2goal=19.2
pushed 87 (6,1)
iter=16, frontier=5, popped=160 (13,1), depth=3, dist2goal=19.2
pushed 173 (14,1)
pushed 174 (14,2)
iter=17, frontier=6, popped=161 (13,2), depth=3, dist2goal=18.2
pushed 175 (14,3)
iter=18, frontier=6, popped=162 (13,3), depth=3, dist2goal=17.3
iter=19, frontier=5, popped=115 (8,3), depth=4, dist2goal=17.1
pushed 101 (7,3)
iter=20, frontier=5, popped=100 (7,2), depth=4, dist2goal=18.2

pushed 88 (6,2)
iter=21, frontier=5, popped=87 (6,1), depth=4, dist2goal=19.4
pushed 75 (5,1)
iter=22, frontier=5, popped=173 (14,1), depth=4, dist2goal=19.4
pushed 185 (15,1)
pushed 186 (15,2)
iter=23, frontier=6, popped=174 (14,2), depth=4, dist2goal=18.4
pushed 187 (15,3)
iter=24, frontier=6, popped=175 (14,3), depth=4, dist2goal=17.5
iter=25, frontier=5, popped=101 (7,3), depth=5, dist2goal=17.3
pushed 89 (6,3)
iter=26, frontier=5, popped=88 (6,2), depth=5, dist2goal=18.4
pushed 76 (5,2)
iter=27, frontier=5, popped=75 (5,1), depth=5, dist2goal=19.6
pushed 59 (4,1)
iter=28, frontier=5, popped=185 (15,1), depth=5, dist2goal=19.6
pushed 198 (16,1)
pushed 199 (16,2)
iter=29, frontier=6, popped=186 (15,2), depth=5, dist2goal=18.7
pushed 200 (16,3)
iter=30, frontier=6, popped=187 (15,3), depth=5, dist2goal=17.7
iter=31, frontier=5, popped=89 (6,3), depth=6, dist2goal=17.5
pushed 77 (5,3)
iter=32, frontier=5, popped=76 (5,2), depth=6, dist2goal=18.7
pushed 60 (4,2)
iter=33, frontier=5, popped=59 (4,1), depth=6, dist2goal=19.9
pushed 40 (3,1)
iter=34, frontier=5, popped=198 (16,1), depth=6, dist2goal=19.9
pushed 211 (17,1)
pushed 212 (17,2)
iter=35, frontier=6, popped=199 (16,2), depth=6, dist2goal=19.0
pushed 213 (17,3)
iter=36, frontier=6, popped=200 (16,3), depth=6, dist2goal=18.0
iter=37, frontier=5, popped=77 (5,3), depth=7, dist2goal=17.7
pushed 61 (4,3)
iter=38, frontier=5, popped=60 (4,2), depth=7, dist2goal=19.0
pushed 41 (3,2)
iter=39, frontier=5, popped=40 (3,1), depth=7, dist2goal=20.2
pushed 20 (2,1)
iter=40, frontier=5, popped=211 (17,1), depth=7, dist2goal=20.2
pushed 223 (18,1)
pushed 224 (18,2)
iter=41, frontier=6, popped=212 (17,2), depth=7, dist2goal=19.3
pushed 225 (18,3)
iter=42, frontier=6, popped=213 (17,3), depth=7, dist2goal=18.4
pushed 226 (18,4)
pushed 227 (18,5)
iter=43, frontier=7, popped=61 (4,3), depth=8, dist2goal=18.0
pushed 62 (4,4)

pushed 42 (3,3)
iter=44, frontier=8, popped=41 (3,2), depth=8, dist2goal=19.3
pushed 21 (2,2)
iter=45, frontier=8, popped=20 (2,1), depth=8, dist2goal=20.6
pushed 0 (1,1)
iter=46, frontier=8, popped=223 (18,1), depth=8, dist2goal=20.6
pushed 237 (19,1)
pushed 238 (19,2)
iter=47, frontier=9, popped=224 (18,2), depth=8, dist2goal=19.7
pushed 239 (19,3)
iter=48, frontier=9, popped=225 (18,3), depth=8, dist2goal=18.8
pushed 240 (19,4)
iter=49, frontier=9, popped=226 (18,4), depth=8, dist2goal=17.9
pushed 241 (19,5)
iter=50, frontier=9, popped=227 (18,5), depth=8, dist2goal=17.0
pushed 228 (18,6)
pushed 242 (19,6)
pushed 214 (17,8)
iter=51, frontier=11, popped=62 (4,4), depth=9, dist2goal=17.1
pushed 63 (4,5)
pushed 43 (3,4)
iter=52, frontier=12, popped=42 (3,3), depth=9, dist2goal=18.4
pushed 22 (2,3)
iter=53, frontier=12, popped=21 (2,2), depth=9, dist2goal=19.7
pushed 1 (1,2)
iter=54, frontier=12, popped=0 (1,1), depth=9, dist2goal=21.0
iter=55, frontier=11, popped=237 (19,1), depth=9, dist2goal=21.0
pushed 255 (20,1)
pushed 256 (20,2)
iter=56, frontier=12, popped=238 (19,2), depth=9, dist2goal=20.1
pushed 257 (20,3)
iter=57, frontier=12, popped=239 (19,3), depth=9, dist2goal=19.2
pushed 258 (20,4)
iter=58, frontier=12, popped=240 (19,4), depth=9, dist2goal=18.4
pushed 259 (20,5)
iter=59, frontier=12, popped=241 (19,5), depth=9, dist2goal=17.5
pushed 260 (20,6)
iter=60, frontier=12, popped=228 (18,6), depth=9, dist2goal=16.1
pushed 229 (18,7)
pushed 243 (19,7)
iter=61, frontier=13, popped=242 (19,6), depth=9, dist2goal=16.6
pushed 261 (20,7)
iter=62, frontier=13, popped=214 (17,8), depth=9, dist2goal=13.9
pushed 201 (16,8)
pushed 230 (18,8)
pushed 202 (16,9)
pushed 203 (16,10)
iter=63, frontier=16, popped=63 (4,5), depth=10, dist2goal=16.2
pushed 64 (4,6)

pushed 44 (3,5)
iter=64, frontier=17, popped=43 (3,4), depth=10, dist2goal=17.5
pushed 23 (2,4)
iter=65, frontier=17, popped=22 (2,3), depth=10, dist2goal=18.8
pushed 2 (1,3)
iter=66, frontier=17, popped=1 (1,2), depth=10, dist2goal=20.1
iter=67, frontier=16, popped=255 (20,1), depth=10, dist2goal=21.5
iter=68, frontier=15, popped=256 (20,2), depth=10, dist2goal=20.6
iter=69, frontier=14, popped=257 (20,3), depth=10, dist2goal=19.7
iter=70, frontier=13, popped=258 (20,4), depth=10, dist2goal=18.9
iter=71, frontier=12, popped=259 (20,5), depth=10, dist2goal=18.0
iter=72, frontier=11, popped=260 (20,6), depth=10, dist2goal=17.2
iter=73, frontier=10, popped=229 (18,7), depth=10, dist2goal=15.3
pushed 244 (19,8)
iter=74, frontier=10, popped=243 (19,7), depth=10, dist2goal=15.8
pushed 262 (20,8)
iter=75, frontier=10, popped=261 (20,7), depth=10, dist2goal=16.4
iter=76, frontier=9, popped=201 (16,8), depth=10, dist2goal=13.4
pushed 188 (15,8)
pushed 177 (14,7)
iter=77, frontier=10, popped=230 (18,8), depth=10, dist2goal=14.4
iter=78, frontier=9, popped=202 (16,9), depth=10, dist2goal=12.5
iter=79, frontier=8, popped=203 (16,10), depth=10, dist2goal=11.7
iter=80, frontier=7, popped=64 (4,6), depth=11, dist2goal=15.2
pushed 65 (4,7)
pushed 45 (3,6)
iter=81, frontier=8, popped=44 (3,5), depth=11, dist2goal=16.6
pushed 24 (2,5)
iter=82, frontier=8, popped=23 (2,4), depth=11, dist2goal=17.9
pushed 3 (1,4)
iter=83, frontier=8, popped=2 (1,3), depth=11, dist2goal=19.2
iter=84, frontier=7, popped=244 (19,8), depth=11, dist2goal=15.0
pushed 263 (20,9)
iter=85, frontier=7, popped=262 (20,8), depth=11, dist2goal=15.6
iter=86, frontier=6, popped=188 (15,8), depth=11, dist2goal=13.0
pushed 178 (14,8)
iter=87, frontier=6, popped=177 (14,7), depth=11, dist2goal=13.6
pushed 176 (14,6)
pushed 164 (13,7)
pushed 163 (13,6)
iter=88, frontier=8, popped=65 (4,7), depth=12, dist2goal=14.3
pushed 66 (4,8)
pushed 46 (3,7)
iter=89, frontier=9, popped=45 (3,6), depth=12, dist2goal=15.7
pushed 25 (2,6)
iter=90, frontier=9, popped=24 (2,5), depth=12, dist2goal=17.0
pushed 4 (1,5)
iter=91, frontier=9, popped=3 (1,4), depth=12, dist2goal=18.4
iter=92, frontier=8, popped=263 (20,9), depth=12, dist2goal=14.9

pushed 264 (20,10)
pushed 245 (19,10)
iter=93, frontier=9, popped=178 (14,8), depth=12, dist2goal=12.6
pushed 165 (13,8)
iter=94, frontier=9, popped=176 (14,6), depth=12, dist2goal=14.6
iter=95, frontier=8, popped=164 (13,7), depth=12, dist2goal=13.3
iter=96, frontier=7, popped=163 (13,6), depth=12, dist2goal=14.3
iter=97, frontier=6, popped=66 (4,8), depth=13, dist2goal=13.4
pushed 67 (4,9)
pushed 78 (5,8)
pushed 47 (3,8)
iter=98, frontier=8, popped=46 (3,7), depth=13, dist2goal=14.8
pushed 26 (2,7)
iter=99, frontier=8, popped=25 (2,6), depth=13, dist2goal=16.1
pushed 5 (1,6)
iter=100, frontier=8, popped=4 (1,5), depth=13, dist2goal=17.5
iter=101, frontier=7, popped=264 (20,10), depth=13, dist2goal=14.1
pushed 265 (20,11)
iter=102, frontier=7, popped=245 (19,10), depth=13, dist2goal=13.5
pushed 246 (19,11)
iter=103, frontier=7, popped=165 (13,8), depth=13, dist2goal=12.4
iter=104, frontier=6, popped=67 (4,9), depth=14, dist2goal=12.5
pushed 68 (4,10)
pushed 48 (3,9)
iter=105, frontier=7, popped=78 (5,8), depth=14, dist2goal=13.0
pushed 90 (6,8)
iter=106, frontier=7, popped=47 (3,8), depth=14, dist2goal=13.9
pushed 27 (2,8)
iter=107, frontier=7, popped=26 (2,7), depth=14, dist2goal=15.3
pushed 6 (1,7)
iter=108, frontier=7, popped=5 (1,6), depth=14, dist2goal=16.6
iter=109, frontier=6, popped=265 (20,11), depth=14, dist2goal=13.5
pushed 266 (20,12)
iter=110, frontier=6, popped=246 (19,11), depth=14, dist2goal=12.7
pushed 247 (19,12)
iter=111, frontier=6, popped=68 (4,10), depth=15, dist2goal=11.7
pushed 49 (3,10)
pushed 50 (3,11)
pushed 51 (3,12)
pushed 52 (3,13)
iter=112, frontier=9, popped=48 (3,9), depth=15, dist2goal=13.0
pushed 28 (2,9)
iter=113, frontier=9, popped=90 (6,8), depth=15, dist2goal=12.6
pushed 104 (7,8)
iter=114, frontier=9, popped=27 (2,8), depth=15, dist2goal=14.4
pushed 7 (1,8)
iter=115, frontier=9, popped=6 (1,7), depth=15, dist2goal=15.8
iter=116, frontier=8, popped=266 (20,12), depth=15, dist2goal=12.8
pushed 267 (20,13)

iter=117, frontier=8, popped=247 (19,12), depth=15, dist2goal=12.0
pushed 248 (19,13)
iter=118, frontier=8, popped=49 (3,10), depth=16, dist2goal=12.2
pushed 29 (2,10)
iter=119, frontier=8, popped=50 (3,11), depth=16, dist2goal=11.4
pushed 30 (2,11)
iter=120, frontier=8, popped=51 (3,12), depth=16, dist2goal=10.6
pushed 31 (2,12)
iter=121, frontier=8, popped=52 (3,13), depth=16, dist2goal=9.9
pushed 32 (2,13)
iter=122, frontier=8, popped=28 (2,9), depth=16, dist2goal=13.6
pushed 8 (1,9)
iter=123, frontier=8, popped=104 (7,8), depth=16, dist2goal=12.4
pushed 103 (7,7)
pushed 105 (7,9)
pushed 118 (8,8)
pushed 119 (8,9)
iter=124, frontier=11, popped=7 (1,8), depth=16, dist2goal=15.0
iter=125, frontier=10, popped=267 (20,13), depth=16, dist2goal=12.2
pushed 268 (20,14)
iter=126, frontier=10, popped=248 (19,13), depth=16, dist2goal=11.4
iter=127, frontier=9, popped=29 (2,10), depth=17, dist2goal=12.8
pushed 9 (1,10)
iter=128, frontier=9, popped=30 (2,11), depth=17, dist2goal=12.0
pushed 10 (1,11)
iter=129, frontier=9, popped=31 (2,12), depth=17, dist2goal=11.3
pushed 11 (1,12)
iter=130, frontier=9, popped=32 (2,13), depth=17, dist2goal=10.6
pushed 33 (2,14)
pushed 12 (1,13)
iter=131, frontier=10, popped=8 (1,9), depth=17, dist2goal=14.2
iter=132, frontier=9, popped=103 (7,7), depth=17, dist2goal=13.3
pushed 102 (7,6)
pushed 117 (8,7)
iter=133, frontier=10, popped=105 (7,9), depth=17, dist2goal=11.4
pushed 106 (7,10)
pushed 120 (8,10)
iter=134, frontier=11, popped=118 (8,8), depth=17, dist2goal=12.2
pushed 135 (9,8)
pushed 136 (9,9)
iter=135, frontier=12, popped=119 (8,9), depth=17, dist2goal=11.2
pushed 137 (9,10)
iter=136, frontier=12, popped=268 (20,14), depth=17, dist2goal=11.7
pushed 269 (20,15)
pushed 249 (19,15)
pushed 231 (18,15)
iter=137, frontier=14, popped=9 (1,10), depth=18, dist2goal=13.5
iter=138, frontier=13, popped=10 (1,11), depth=18, dist2goal=12.7
iter=139, frontier=12, popped=11 (1,12), depth=18, dist2goal=12.0

iter=140, frontier=11, popped=33 (2,14), depth=18, dist2goal=10.0
pushed 34 (2,15)
pushed 13 (1,14)
pushed 53 (3,15)
iter=141, frontier=13, popped=12 (1,13), depth=18, dist2goal=11.4
iter=142, frontier=12, popped=102 (7,6), depth=18, dist2goal=14.3
pushed 116 (8,6)
iter=143, frontier=12, popped=117 (8,7), depth=18, dist2goal=13.2
pushed 134 (9,7)
iter=144, frontier=12, popped=106 (7,10), depth=18, dist2goal=10.4
pushed 121 (8,11)
pushed 122 (8,12)
iter=145, frontier=13, popped=120 (8,10), depth=18, dist2goal=10.2
pushed 138 (9,11)
iter=146, frontier=13, popped=135 (9,8), depth=18, dist2goal=12.0
iter=147, frontier=12, popped=136 (9,9), depth=18, dist2goal=11.0
iter=148, frontier=11, popped=137 (9,10), depth=18, dist2goal=10.0
iter=149, frontier=10, popped=269 (20,15), depth=18, dist2goal=11.2
pushed 270 (20,16)
iter=150, frontier=10, popped=249 (19,15), depth=18, dist2goal=10.3
pushed 250 (19,16)
iter=151, frontier=10, popped=231 (18,15), depth=18, dist2goal=9.4
pushed 232 (18,16)
pushed 217 (17,15)
pushed 204 (16,14)
iter=152, frontier=12, popped=34 (2,15), depth=19, dist2goal=9.4
pushed 35 (2,16)
pushed 14 (1,15)
pushed 54 (3,16)
iter=153, frontier=14, popped=13 (1,14), depth=19, dist2goal=10.8
iter=154, frontier=13, popped=53 (3,15), depth=19, dist2goal=8.6
pushed 69 (4,15)
pushed 70 (4,16)
iter=155, frontier=14, popped=116 (8,6), depth=19, dist2goal=14.1
pushed 133 (9,6)
iter=156, frontier=14, popped=134 (9,7), depth=19, dist2goal=13.0
iter=157, frontier=13, popped=121 (8,11), depth=19, dist2goal=9.2
pushed 139 (9,12)
iter=158, frontier=13, popped=122 (8,12), depth=19, dist2goal=8.2
pushed 123 (8,13)
pushed 140 (9,13)
iter=159, frontier=14, popped=138 (9,11), depth=19, dist2goal=9.1
iter=160, frontier=13, popped=270 (20,16), depth=19, dist2goal=10.8
pushed 271 (20,17)
iter=161, frontier=13, popped=250 (19,16), depth=19, dist2goal=9.8
pushed 251 (19,17)
iter=162, frontier=13, popped=232 (18,16), depth=19, dist2goal=8.9
pushed 233 (18,17)
pushed 218 (17,16)

iter=163, frontier=14, popped=217 (17,15), depth=19, dist2goal=8.6
pushed 205 (16,15)
iter=164, frontier=14, popped=204 (16,14), depth=19, dist2goal=8.5
pushed 191 (15,14)
pushed 190 (15,13)
pushed 216 (17,13)
pushed 215 (17,12)
iter=165, frontier=17, popped=35 (2,16), depth=20, dist2goal=8.9
pushed 36 (2,17)
pushed 15 (1,16)
pushed 55 (3,17)
iter=166, frontier=19, popped=14 (1,15), depth=20, dist2goal=10.3
iter=167, frontier=18, popped=54 (3,16), depth=20, dist2goal=8.1
pushed 71 (4,17)
iter=168, frontier=18, popped=69 (4,15), depth=20, dist2goal=7.8
pushed 81 (5,15)
pushed 82 (5,16)
iter=169, frontier=19, popped=70 (4,16), depth=20, dist2goal=7.2
pushed 83 (5,17)
iter=170, frontier=19, popped=133 (9,6), depth=20, dist2goal=14.0
iter=171, frontier=18, popped=139 (9,12), depth=20, dist2goal=8.1
iter=172, frontier=17, popped=123 (8,13), depth=20, dist2goal=7.3
iter=173, frontier=16, popped=140 (9,13), depth=20, dist2goal=7.1
pushed 141 (9,14)
iter=174, frontier=16, popped=271 (20,17), depth=20, dist2goal=10.4
pushed 272 (20,18)
iter=175, frontier=16, popped=251 (19,17), depth=20, dist2goal=9.5
pushed 252 (19,18)
iter=176, frontier=16, popped=233 (18,17), depth=20, dist2goal=8.5
pushed 234 (18,18)
pushed 219 (17,17)
iter=177, frontier=17, popped=218 (17,16), depth=20, dist2goal=8.1
pushed 206 (16,16)
iter=178, frontier=17, popped=205 (16,15), depth=20, dist2goal=7.8
pushed 192 (15,15)
iter=179, frontier=17, popped=191 (15,14), depth=20, dist2goal=7.8
iter=180, frontier=16, popped=190 (15,13), depth=20, dist2goal=8.6
pushed 189 (15,12)
iter=181, frontier=16, popped=216 (17,13), depth=20, dist2goal=9.9
iter=182, frontier=15, popped=215 (17,12), depth=20, dist2goal=10.6
iter=183, frontier=14, popped=36 (2,17), depth=21, dist2goal=8.5
pushed 37 (2,18)
pushed 16 (1,17)
pushed 56 (3,18)
iter=184, frontier=16, popped=15 (1,16), depth=21, dist2goal=9.8
iter=185, frontier=15, popped=55 (3,17), depth=21, dist2goal=7.6
pushed 72 (4,18)
iter=186, frontier=15, popped=71 (4,17), depth=21, dist2goal=6.7
pushed 84 (5,18)

iter=187, frontier=15, popped=81 (5,15), depth=21, dist2goal=7.1
pushed 80 (5,14)
pushed 93 (6,15)
pushed 94 (6,16)
iter=188, frontier=17, popped=82 (5,16), depth=21, dist2goal=6.4
pushed 95 (6,17)
iter=189, frontier=17, popped=83 (5,17), depth=21, dist2goal=5.8
pushed 96 (6,18)
iter=190, frontier=17, popped=141 (9,14), depth=21, dist2goal=6.1
pushed 142 (9,15)
iter=191, frontier=17, popped=272 (20,18), depth=21, dist2goal=10.2
pushed 273 (20,19)
iter=192, frontier=17, popped=252 (19,18), depth=21, dist2goal=9.2
pushed 253 (19,19)
iter=193, frontier=17, popped=234 (18,18), depth=21, dist2goal=8.2
pushed 235 (18,19)
pushed 220 (17,18)
iter=194, frontier=18, popped=219 (17,17), depth=21, dist2goal=7.6
pushed 207 (16,17)
iter=195, frontier=18, popped=206 (16,16), depth=21, dist2goal=7.2
pushed 193 (15,16)
iter=196, frontier=18, popped=192 (15,15), depth=21, dist2goal=7.1
pushed 179 (14,15)
iter=197, frontier=18, popped=189 (15,12), depth=21, dist2goal=9.4
iter=198, frontier=17, popped=37 (2,18), depth=22, dist2goal=8.2
pushed 38 (2,19)
pushed 17 (1,18)
pushed 57 (3,19)
iter=199, frontier=19, popped=16 (1,17), depth=22, dist2goal=9.5
iter=200, frontier=18, popped=56 (3,18), depth=22, dist2goal=7.3
pushed 73 (4,19)
iter=201, frontier=18, popped=72 (4,18), depth=22, dist2goal=6.3
pushed 85 (5,19)
iter=202, frontier=18, popped=84 (5,18), depth=22, dist2goal=5.4
pushed 97 (6,19)
iter=203, frontier=18, popped=80 (5,14), depth=22, dist2goal=7.8
pushed 79 (5,13)
pushed 92 (6,14)
iter=204, frontier=19, popped=93 (6,15), depth=22, dist2goal=6.4
pushed 107 (7,15)
pushed 108 (7,16)
iter=205, frontier=20, popped=94 (6,16), depth=22, dist2goal=5.7
pushed 109 (7,17)
iter=206, frontier=20, popped=95 (6,17), depth=22, dist2goal=5.0
pushed 110 (7,18)
iter=207, frontier=20, popped=96 (6,18), depth=22, dist2goal=4.5
pushed 111 (7,19)
iter=208, frontier=20, popped=142 (9,15), depth=22, dist2goal=5.1
pushed 124 (8,15)

iter=209, frontier=20, popped=273 (20,19), depth=22, dist2goal=10.0
pushed 274 (20,20)
iter=210, frontier=20, popped=253 (19,19), depth=22, dist2goal=9.1
pushed 254 (19,20)
iter=211, frontier=20, popped=235 (18,19), depth=22, dist2goal=8.1
pushed 236 (18,20)
pushed 221 (17,19)
iter=212, frontier=21, popped=220 (17,18), depth=22, dist2goal=7.3
pushed 208 (16,18)
iter=213, frontier=21, popped=207 (16,17), depth=22, dist2goal=6.7
pushed 194 (15,17)
iter=214, frontier=21, popped=193 (15,16), depth=22, dist2goal=6.4
pushed 180 (14,16)
iter=215, frontier=21, popped=179 (14,15), depth=22, dist2goal=6.4
pushed 170 (13,15)
iter=216, frontier=21, popped=38 (2,19), depth=23, dist2goal=8.1
pushed 39 (2,20)
pushed 18 (1,19)
pushed 58 (3,20)
iter=217, frontier=23, popped=17 (1,18), depth=23, dist2goal=9.2
iter=218, frontier=22, popped=57 (3,19), depth=23, dist2goal=7.1
pushed 74 (4,20)
iter=219, frontier=22, popped=73 (4,19), depth=23, dist2goal=6.1
pushed 86 (5,20)
iter=220, frontier=22, popped=85 (5,19), depth=23, dist2goal=5.1
pushed 98 (6,20)
iter=221, frontier=22, popped=97 (6,19), depth=23, dist2goal=4.1
pushed 112 (7,20)
iter=222, frontier=22, popped=79 (5,13), depth=23, dist2goal=8.6
pushed 91 (6,13)
iter=223, frontier=22, popped=92 (6,14), depth=23, dist2goal=7.2
iter=224, frontier=21, popped=107 (7,15), depth=23, dist2goal=5.8
pushed 125 (8,16)
iter=225, frontier=21, popped=108 (7,16), depth=23, dist2goal=5.0
pushed 126 (8,17)
iter=226, frontier=21, popped=109 (7,17), depth=23, dist2goal=4.2
pushed 127 (8,18)
iter=227, frontier=21, popped=110 (7,18), depth=23, dist2goal=3.6
pushed 128 (8,19)
iter=228, frontier=21, popped=111 (7,19), depth=23, dist2goal=3.2
pushed 129 (8,20)
iter=229, frontier=21, popped=124 (8,15), depth=23, dist2goal=5.4
iter=230, frontier=20, popped=274 (20,20), depth=23, dist2goal=10.0
iter=231, frontier=19, popped=254 (19,20), depth=23, dist2goal=9.0
iter=232, frontier=18, popped=236 (18,20), depth=23, dist2goal=8.0
pushed 222 (17,20)
iter=233, frontier=18, popped=221 (17,19), depth=23, dist2goal=7.1
pushed 209 (16,19)
iter=234, frontier=18, popped=208 (16,18), depth=23, dist2goal=6.3

pushed 195 (15,18)
iter=235, frontier=18, popped=194 (15,17), depth=23, dist2goal=5.8
pushed 181 (14,17)
iter=236, frontier=18, popped=180 (14,16), depth=23, dist2goal=5.7
iter=237, frontier=17, popped=170 (13,15), depth=23, dist2goal=5.8
iter=238, frontier=16, popped=39 (2,20), depth=24, dist2goal=8.0
pushed 19 (1,20)
iter=239, frontier=16, popped=18 (1,19), depth=24, dist2goal=9.1
iter=240, frontier=15, popped=58 (3,20), depth=24, dist2goal=7.0
iter=241, frontier=14, popped=74 (4,20), depth=24, dist2goal=6.0
iter=242, frontier=13, popped=86 (5,20), depth=24, dist2goal=5.0
iter=243, frontier=12, popped=98 (6,20), depth=24, dist2goal=4.0
iter=244, frontier=11, popped=112 (7,20), depth=24, dist2goal=3.0
iter=245, frontier=10, popped=91 (6,13), depth=24, dist2goal=8.1
iter=246, frontier=9, popped=125 (8,16), depth=24, dist2goal=4.5
iter=247, frontier=8, popped=126 (8,17), depth=24, dist2goal=3.6
iter=248, frontier=7, popped=127 (8,18), depth=24, dist2goal=2.8
pushed 143 (9,19)
pushed 148 (10,19)
pushed 153 (11,19)
iter=249, frontier=9, popped=128 (8,19), depth=24, dist2goal=2.2
pushed 144 (9,20)
iter=250, frontier=9, popped=129 (8,20), depth=24, dist2goal=2.0
iter=251, frontier=8, popped=222 (17,20), depth=24, dist2goal=7.0
pushed 210 (16,20)
iter=252, frontier=8, popped=209 (16,19), depth=24, dist2goal=6.1
pushed 196 (15,19)
iter=253, frontier=8, popped=195 (15,18), depth=24, dist2goal=5.4
pushed 182 (14,18)
iter=254, frontier=8, popped=181 (14,17), depth=24, dist2goal=5.0
pushed 171 (13,19)
iter=255, frontier=8, popped=19 (1,20), depth=25, dist2goal=9.0
iter=256, frontier=7, popped=143 (9,19), depth=25, dist2goal=1.4
pushed 149 (10,20)
iter=257, frontier=7, popped=148 (10,19), depth=25, dist2goal=1.0
pushed 154 (11,20)
iter=258, frontier=7, popped=153 (11,19), depth=25, dist2goal=1.4
pushed 158 (12,19)
pushed 159 (12,20)
iter=259, frontier=8, popped=144 (9,20), depth=25, dist2goal=1.0
iter=260, frontier=7, popped=210 (16,20), depth=25, dist2goal=6.0
pushed 197 (15,20)
iter=261, frontier=7, popped=196 (15,19), depth=25, dist2goal=5.1
pushed 183 (14,19)
iter=262, frontier=7, popped=182 (14,18), depth=25, dist2goal=4.5
iter=263, frontier=6, popped=171 (13,19), depth=25, dist2goal=3.2
pushed 172 (13,20)
pushed 184 (14,20)
iter=264, frontier=7, popped=149 (10,20), depth=26, dist2goal=0.0

=====

Solution path:

10 1
10 2
10 3
9 3
8 3
7 3
6 3
5 3
4 3
4 4
4 5
4 6
4 7
4 8
4 9
4 10
3 13
2 13
2 14
3 15
4 15
5 15
6 16
7 17
8 18
9 19
10 20

Search algorithm = BFS

Total iterations = 264

Max frontier size = 24

Vertices visited = 270/275

Path length = 26

===== << END >> =====

Vertices=275, edges=641

Start=(10,1), goal=(10,20), vertices: 145 and 149

iter=1, frontier=0, popped=145 (10,1), depth=0, dist2goal=19.0

pushed 146 (10,2)

pushed 130 (9,1)

pushed 150 (11,1)

pushed 151 (11,2)

iter=2, frontier=3, popped=151 (11,2), depth=1, dist2goal=18.0

pushed 152 (11,3)

pushed 156 (12,2)

pushed 157 (12,3)

iter=3, frontier=5, popped=157 (12,3), depth=2, dist2goal=17.1

pushed 162 (13,3)

iter=4, frontier=5, popped=162 (13,3), depth=3, dist2goal=17.3
pushed 161 (13,2)
pushed 175 (14,3)
iter=5, frontier=6, popped=175 (14,3), depth=4, dist2goal=17.5
pushed 174 (14,2)
pushed 187 (15,3)
iter=6, frontier=7, popped=187 (15,3), depth=5, dist2goal=17.7
pushed 186 (15,2)
pushed 200 (16,3)
iter=7, frontier=8, popped=200 (16,3), depth=6, dist2goal=18.0
pushed 199 (16,2)
pushed 213 (17,3)
iter=8, frontier=9, popped=213 (17,3), depth=7, dist2goal=18.4
pushed 212 (17,2)
pushed 225 (18,3)
pushed 226 (18,4)
pushed 227 (18,5)
iter=9, frontier=12, popped=227 (18,5), depth=8, dist2goal=17.0
pushed 228 (18,6)
pushed 241 (19,5)
pushed 242 (19,6)
pushed 214 (17,8)
iter=10, frontier=15, popped=214 (17,8), depth=9, dist2goal=13.9
pushed 201 (16,8)
pushed 230 (18,8)
pushed 202 (16,9)
pushed 229 (18,7)
pushed 203 (16,10)
iter=11, frontier=19, popped=203 (16,10), depth=10, dist2goal=11.7
pushed 188 (15,8)
iter=12, frontier=19, popped=188 (15,8), depth=11, dist2goal=13.0
pushed 178 (14,8)
pushed 177 (14,7)
iter=13, frontier=20, popped=177 (14,7), depth=12, dist2goal=13.6
pushed 176 (14,6)
pushed 164 (13,7)
pushed 163 (13,6)
iter=14, frontier=22, popped=163 (13,6), depth=13, dist2goal=14.3
iter=15, frontier=21, popped=164 (13,7), depth=13, dist2goal=13.3
pushed 165 (13,8)
iter=16, frontier=21, popped=165 (13,8), depth=14, dist2goal=12.4
iter=17, frontier=20, popped=176 (14,6), depth=13, dist2goal=14.6
iter=18, frontier=19, popped=178 (14,8), depth=12, dist2goal=12.6
iter=19, frontier=18, popped=229 (18,7), depth=10, dist2goal=15.3
pushed 243 (19,7)
pushed 244 (19,8)
iter=20, frontier=19, popped=244 (19,8), depth=11, dist2goal=15.0
pushed 262 (20,8)
pushed 263 (20,9)

iter=21, frontier=20, popped=263 (20,9), depth=12, dist2goal=14.9
pushed 264 (20,10)
pushed 245 (19,10)
iter=22, frontier=21, popped=245 (19,10), depth=13, dist2goal=13.5
pushed 246 (19,11)
pushed 265 (20,11)
iter=23, frontier=22, popped=265 (20,11), depth=14, dist2goal=13.5
pushed 266 (20,12)
iter=24, frontier=22, popped=266 (20,12), depth=15, dist2goal=12.8
pushed 267 (20,13)
pushed 247 (19,12)
iter=25, frontier=23, popped=247 (19,12), depth=16, dist2goal=12.0
pushed 248 (19,13)
iter=26, frontier=23, popped=248 (19,13), depth=17, dist2goal=11.4
pushed 268 (20,14)
iter=27, frontier=23, popped=268 (20,14), depth=18, dist2goal=11.7
pushed 269 (20,15)
pushed 249 (19,15)
pushed 231 (18,15)
iter=28, frontier=25, popped=231 (18,15), depth=19, dist2goal=9.4
pushed 232 (18,16)
pushed 217 (17,15)
pushed 250 (19,16)
pushed 204 (16,14)
iter=29, frontier=28, popped=204 (16,14), depth=20, dist2goal=8.5
pushed 205 (16,15)
pushed 191 (15,14)
pushed 190 (15,13)
pushed 216 (17,13)
pushed 215 (17,12)
iter=30, frontier=32, popped=215 (17,12), depth=21, dist2goal=10.6
iter=31, frontier=31, popped=216 (17,13), depth=21, dist2goal=9.9
iter=32, frontier=30, popped=190 (15,13), depth=21, dist2goal=8.6
pushed 189 (15,12)
iter=33, frontier=30, popped=189 (15,12), depth=22, dist2goal=9.4
iter=34, frontier=29, popped=191 (15,14), depth=21, dist2goal=7.8
pushed 192 (15,15)
iter=35, frontier=29, popped=192 (15,15), depth=22, dist2goal=7.1
pushed 193 (15,16)
pushed 179 (14,15)
pushed 206 (16,16)
iter=36, frontier=31, popped=206 (16,16), depth=23, dist2goal=7.2
pushed 207 (16,17)
pushed 218 (17,16)
pushed 219 (17,17)
iter=37, frontier=33, popped=219 (17,17), depth=24, dist2goal=7.6
pushed 220 (17,18)
pushed 233 (18,17)
pushed 234 (18,18)

iter=38, frontier=35, popped=234 (18,18), depth=25, dist2goal=8.2
pushed 235 (18,19)
pushed 252 (19,18)
pushed 253 (19,19)
iter=39, frontier=37, popped=253 (19,19), depth=26, dist2goal=9.1
pushed 254 (19,20)
pushed 273 (20,19)
pushed 274 (20,20)
iter=40, frontier=39, popped=274 (20,20), depth=27, dist2goal=10.0
iter=41, frontier=38, popped=273 (20,19), depth=27, dist2goal=10.0
pushed 272 (20,18)
iter=42, frontier=38, popped=272 (20,18), depth=28, dist2goal=10.2
pushed 271 (20,17)
pushed 251 (19,17)
iter=43, frontier=39, popped=251 (19,17), depth=29, dist2goal=9.5
iter=44, frontier=38, popped=271 (20,17), depth=29, dist2goal=10.4
pushed 270 (20,16)
iter=45, frontier=38, popped=270 (20,16), depth=30, dist2goal=10.8
iter=46, frontier=37, popped=254 (19,20), depth=27, dist2goal=9.0
pushed 236 (18,20)
iter=47, frontier=37, popped=236 (18,20), depth=28, dist2goal=8.0
pushed 222 (17,20)
pushed 221 (17,19)
iter=48, frontier=38, popped=221 (17,19), depth=29, dist2goal=7.1
pushed 209 (16,19)
pushed 208 (16,18)
iter=49, frontier=39, popped=208 (16,18), depth=30, dist2goal=6.3
pushed 195 (15,18)
pushed 194 (15,17)
iter=50, frontier=40, popped=194 (15,17), depth=31, dist2goal=5.8
pushed 181 (14,17)
pushed 180 (14,16)
iter=51, frontier=41, popped=180 (14,16), depth=32, dist2goal=5.7
iter=52, frontier=40, popped=181 (14,17), depth=32, dist2goal=5.0
pushed 182 (14,18)
pushed 171 (13,19)
iter=53, frontier=41, popped=171 (13,19), depth=33, dist2goal=3.2
pushed 172 (13,20)
pushed 183 (14,19)
pushed 158 (12,19)
pushed 184 (14,20)
iter=54, frontier=44, popped=184 (14,20), depth=34, dist2goal=4.0
pushed 197 (15,20)
iter=55, frontier=44, popped=197 (15,20), depth=35, dist2goal=5.0
pushed 196 (15,19)
pushed 210 (16,20)
iter=56, frontier=45, popped=210 (16,20), depth=36, dist2goal=6.0
iter=57, frontier=44, popped=196 (15,19), depth=36, dist2goal=5.1
iter=58, frontier=43, popped=158 (12,19), depth=34, dist2goal=2.2

pushed 159 (12,20)
pushed 153 (11,19)
iter=59, frontier=44, popped=153 (11,19), depth=35, dist2goal=1.4
pushed 154 (11,20)
pushed 148 (10,19)
pushed 127 (8,18)
iter=60, frontier=46, popped=127 (8,18), depth=36, dist2goal=2.8
pushed 128 (8,19)
pushed 126 (8,17)
pushed 110 (7,18)
pushed 143 (9,19)
pushed 109 (7,17)
iter=61, frontier=50, popped=109 (7,17), depth=37, dist2goal=4.2
pushed 108 (7,16)
pushed 95 (6,17)
pushed 94 (6,16)
iter=62, frontier=52, popped=94 (6,16), depth=38, dist2goal=5.7
pushed 93 (6,15)
pushed 82 (5,16)
pushed 81 (5,15)
iter=63, frontier=54, popped=81 (5,15), depth=39, dist2goal=7.1
pushed 80 (5,14)
pushed 69 (4,15)
iter=64, frontier=55, popped=69 (4,15), depth=40, dist2goal=7.8
pushed 70 (4,16)
pushed 53 (3,15)
iter=65, frontier=56, popped=53 (3,15), depth=41, dist2goal=8.6
pushed 54 (3,16)
pushed 34 (2,15)
pushed 33 (2,14)
iter=66, frontier=58, popped=33 (2,14), depth=42, dist2goal=10.0
pushed 32 (2,13)
pushed 13 (1,14)
pushed 12 (1,13)
iter=67, frontier=60, popped=12 (1,13), depth=43, dist2goal=11.4
pushed 11 (1,12)
iter=68, frontier=60, popped=11 (1,12), depth=44, dist2goal=12.0
pushed 10 (1,11)
pushed 31 (2,12)
iter=69, frontier=61, popped=31 (2,12), depth=45, dist2goal=11.3
pushed 30 (2,11)
pushed 51 (3,12)
pushed 52 (3,13)
iter=70, frontier=63, popped=52 (3,13), depth=46, dist2goal=9.9
pushed 68 (4,10)
iter=71, frontier=63, popped=68 (4,10), depth=47, dist2goal=11.7
pushed 67 (4,9)
pushed 49 (3,10)
pushed 48 (3,9)

pushed 50 (3,11)
iter=72, frontier=66, popped=50 (3,11), depth=48, dist2goal=11.4
pushed 29 (2,10)
iter=73, frontier=66, popped=29 (2,10), depth=49, dist2goal=12.8
pushed 28 (2,9)
pushed 9 (1,10)
pushed 8 (1,9)
iter=74, frontier=68, popped=8 (1,9), depth=50, dist2goal=14.2
pushed 7 (1,8)
iter=75, frontier=68, popped=7 (1,8), depth=51, dist2goal=15.0
pushed 6 (1,7)
pushed 27 (2,8)
iter=76, frontier=69, popped=27 (2,8), depth=52, dist2goal=14.4
pushed 26 (2,7)
pushed 47 (3,8)
iter=77, frontier=70, popped=47 (3,8), depth=53, dist2goal=13.9
pushed 46 (3,7)
pushed 66 (4,8)
iter=78, frontier=71, popped=66 (4,8), depth=54, dist2goal=13.4
pushed 65 (4,7)
pushed 78 (5,8)
iter=79, frontier=72, popped=78 (5,8), depth=55, dist2goal=13.0
pushed 90 (6,8)
iter=80, frontier=72, popped=90 (6,8), depth=56, dist2goal=12.6
pushed 104 (7,8)
iter=81, frontier=72, popped=104 (7,8), depth=57, dist2goal=12.4
pushed 103 (7,7)
pushed 105 (7,9)
pushed 118 (8,8)
pushed 119 (8,9)
iter=82, frontier=75, popped=119 (8,9), depth=58, dist2goal=11.2
pushed 120 (8,10)
pushed 136 (9,9)
pushed 137 (9,10)
iter=83, frontier=77, popped=137 (9,10), depth=59, dist2goal=10.0
pushed 138 (9,11)
iter=84, frontier=77, popped=138 (9,11), depth=60, dist2goal=9.1
pushed 139 (9,12)
pushed 121 (8,11)
iter=85, frontier=78, popped=121 (8,11), depth=61, dist2goal=9.2
pushed 122 (8,12)
pushed 106 (7,10)
iter=86, frontier=79, popped=106 (7,10), depth=62, dist2goal=10.4
iter=87, frontier=78, popped=122 (8,12), depth=62, dist2goal=8.2
pushed 123 (8,13)
pushed 140 (9,13)
iter=88, frontier=79, popped=140 (9,13), depth=63, dist2goal=7.1
pushed 141 (9,14)
iter=89, frontier=79, popped=141 (9,14), depth=64, dist2goal=6.1

pushed 142 (9,15)
iter=90, frontier=79, popped=142 (9,15), depth=65, dist2goal=5.1
pushed 124 (8,15)
iter=91, frontier=79, popped=124 (8,15), depth=66, dist2goal=5.4
pushed 125 (8,16)
pushed 107 (7,15)
iter=92, frontier=80, popped=107 (7,15), depth=67, dist2goal=5.8
pushed 92 (6,14)
iter=93, frontier=80, popped=92 (6,14), depth=68, dist2goal=7.2
pushed 91 (6,13)
pushed 79 (5,13)
iter=94, frontier=81, popped=79 (5,13), depth=69, dist2goal=8.6
iter=95, frontier=80, popped=91 (6,13), depth=69, dist2goal=8.1
iter=96, frontier=79, popped=125 (8,16), depth=67, dist2goal=4.5
iter=97, frontier=78, popped=123 (8,13), depth=63, dist2goal=7.3
iter=98, frontier=77, popped=139 (9,12), depth=61, dist2goal=8.1
iter=99, frontier=76, popped=136 (9,9), depth=59, dist2goal=11.0
pushed 135 (9,8)
iter=100, frontier=76, popped=135 (9,8), depth=60, dist2goal=12.0
pushed 134 (9,7)
pushed 117 (8,7)
iter=101, frontier=77, popped=117 (8,7), depth=61, dist2goal=13.2
pushed 116 (8,6)
pushed 102 (7,6)
iter=102, frontier=78, popped=102 (7,6), depth=62, dist2goal=14.3
iter=103, frontier=77, popped=116 (8,6), depth=62, dist2goal=14.1
pushed 133 (9,6)
iter=104, frontier=77, popped=133 (9,6), depth=63, dist2goal=14.0
iter=105, frontier=76, popped=134 (9,7), depth=61, dist2goal=13.0
iter=106, frontier=75, popped=120 (8,10), depth=59, dist2goal=10.2
iter=107, frontier=74, popped=118 (8,8), depth=58, dist2goal=12.2
iter=108, frontier=73, popped=105 (7,9), depth=58, dist2goal=11.4
iter=109, frontier=72, popped=103 (7,7), depth=58, dist2goal=13.3
iter=110, frontier=71, popped=65 (4,7), depth=55, dist2goal=14.3
pushed 64 (4,6)
pushed 45 (3,6)
iter=111, frontier=72, popped=45 (3,6), depth=56, dist2goal=15.7
pushed 44 (3,5)
pushed 25 (2,6)
pushed 24 (2,5)
iter=112, frontier=74, popped=24 (2,5), depth=57, dist2goal=17.0
pushed 23 (2,4)
pushed 4 (1,5)
pushed 3 (1,4)
iter=113, frontier=76, popped=3 (1,4), depth=58, dist2goal=18.4
pushed 2 (1,3)
iter=114, frontier=76, popped=2 (1,3), depth=59, dist2goal=19.2
pushed 1 (1,2)
pushed 22 (2,3)

iter=115, frontier=77, popped=22 (2,3), depth=60, dist2goal=18.8
pushed 21 (2,2)
pushed 42 (3,3)
pushed 43 (3,4)
iter=116, frontier=79, popped=43 (3,4), depth=61, dist2goal=17.5
pushed 62 (4,4)
pushed 63 (4,5)
iter=117, frontier=80, popped=63 (4,5), depth=62, dist2goal=16.2
iter=118, frontier=79, popped=62 (4,4), depth=62, dist2goal=17.1
pushed 61 (4,3)
iter=119, frontier=79, popped=61 (4,3), depth=63, dist2goal=18.0
pushed 60 (4,2)
pushed 77 (5,3)
pushed 41 (3,2)
iter=120, frontier=81, popped=41 (3,2), depth=64, dist2goal=19.3
pushed 40 (3,1)
pushed 20 (2,1)
iter=121, frontier=82, popped=20 (2,1), depth=65, dist2goal=20.6
pushed 0 (1,1)
iter=122, frontier=82, popped=0 (1,1), depth=66, dist2goal=21.0
iter=123, frontier=81, popped=40 (3,1), depth=65, dist2goal=20.2
pushed 59 (4,1)
iter=124, frontier=81, popped=59 (4,1), depth=66, dist2goal=19.9
pushed 75 (5,1)
pushed 76 (5,2)
iter=125, frontier=82, popped=76 (5,2), depth=67, dist2goal=18.7
pushed 88 (6,2)
pushed 89 (6,3)
iter=126, frontier=83, popped=89 (6,3), depth=68, dist2goal=17.5
pushed 101 (7,3)
iter=127, frontier=83, popped=101 (7,3), depth=69, dist2goal=17.3
pushed 100 (7,2)
pushed 115 (8,3)
iter=128, frontier=84, popped=115 (8,3), depth=70, dist2goal=17.1
pushed 114 (8,2)
pushed 132 (9,3)
iter=129, frontier=85, popped=132 (9,3), depth=71, dist2goal=17.0
pushed 131 (9,2)
pushed 147 (10,3)
iter=130, frontier=86, popped=147 (10,3), depth=72, dist2goal=17.0
iter=131, frontier=85, popped=131 (9,2), depth=72, dist2goal=18.0
pushed 113 (8,1)
iter=132, frontier=85, popped=113 (8,1), depth=73, dist2goal=19.1
pushed 99 (7,1)
iter=133, frontier=85, popped=99 (7,1), depth=74, dist2goal=19.2
pushed 87 (6,1)
iter=134, frontier=85, popped=87 (6,1), depth=75, dist2goal=19.4
iter=135, frontier=84, popped=114 (8,2), depth=71, dist2goal=18.1
iter=136, frontier=83, popped=100 (7,2), depth=70, dist2goal=18.2

iter=137, frontier=82, popped=88 (6,2), depth=68, dist2goal=18.4
iter=138, frontier=81, popped=75 (5,1), depth=67, dist2goal=19.6
iter=139, frontier=80, popped=77 (5,3), depth=64, dist2goal=17.7
iter=140, frontier=79, popped=60 (4,2), depth=64, dist2goal=19.0
iter=141, frontier=78, popped=42 (3,3), depth=61, dist2goal=18.4
iter=142, frontier=77, popped=21 (2,2), depth=61, dist2goal=19.7
iter=143, frontier=76, popped=1 (1,2), depth=60, dist2goal=20.1
iter=144, frontier=75, popped=4 (1,5), depth=58, dist2goal=17.5
pushed 5 (1,6)
iter=145, frontier=75, popped=5 (1,6), depth=59, dist2goal=16.6
iter=146, frontier=74, popped=23 (2,4), depth=58, dist2goal=17.9
iter=147, frontier=73, popped=25 (2,6), depth=57, dist2goal=16.1
iter=148, frontier=72, popped=44 (3,5), depth=57, dist2goal=16.6
iter=149, frontier=71, popped=64 (4,6), depth=56, dist2goal=15.2
iter=150, frontier=70, popped=46 (3,7), depth=54, dist2goal=14.8
iter=151, frontier=69, popped=26 (2,7), depth=53, dist2goal=15.3
iter=152, frontier=68, popped=6 (1,7), depth=52, dist2goal=15.8
iter=153, frontier=67, popped=9 (1,10), depth=50, dist2goal=13.5
iter=154, frontier=66, popped=28 (2,9), depth=50, dist2goal=13.6
iter=155, frontier=65, popped=48 (3,9), depth=48, dist2goal=13.0
iter=156, frontier=64, popped=49 (3,10), depth=48, dist2goal=12.2
iter=157, frontier=63, popped=67 (4,9), depth=48, dist2goal=12.5
iter=158, frontier=62, popped=51 (3,12), depth=46, dist2goal=10.6
iter=159, frontier=61, popped=30 (2,11), depth=46, dist2goal=12.0
iter=160, frontier=60, popped=10 (1,11), depth=45, dist2goal=12.7
iter=161, frontier=59, popped=13 (1,14), depth=43, dist2goal=10.8
pushed 14 (1,15)
iter=162, frontier=59, popped=14 (1,15), depth=44, dist2goal=10.3
pushed 15 (1,16)
pushed 35 (2,16)
iter=163, frontier=60, popped=35 (2,16), depth=45, dist2goal=8.9
pushed 36 (2,17)
pushed 55 (3,17)
iter=164, frontier=61, popped=55 (3,17), depth=46, dist2goal=7.6
pushed 56 (3,18)
pushed 71 (4,17)
pushed 72 (4,18)
iter=165, frontier=63, popped=72 (4,18), depth=47, dist2goal=6.3
pushed 73 (4,19)
pushed 84 (5,18)
pushed 85 (5,19)
iter=166, frontier=65, popped=85 (5,19), depth=48, dist2goal=5.1
pushed 86 (5,20)
pushed 97 (6,19)
pushed 98 (6,20)
iter=167, frontier=67, popped=98 (6,20), depth=49, dist2goal=4.0
pushed 112 (7,20)
iter=168, frontier=67, popped=112 (7,20), depth=50, dist2goal=3.0
pushed 111 (7,19)

pushed 129 (8,20)

iter=169, frontier=68, popped=129 (8,20), depth=51, dist2goal=2.0

pushed 144 (9,20)

iter=170, frontier=68, popped=144 (9,20), depth=52, dist2goal=1.0

pushed 149 (10,20)

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Solution path:

10 1

11 2

12 3

13 3

14 3

15 3

16 3

17 3

18 5

17 8

18 7

19 8

20 9

19 10

20 11

20 12

19 12

19 13

20 14

18 15

16 14

15 14

15 15

16 16

17 17

18 18

19 19

19 20

18 20

17 19

16 18

15 17

14 17

13 19

12 19

11 19

8 18

7 17

6 16

5 15

4 15

3 15

2 14
1 14
1 15
2 16
3 17
4 18
5 19
6 20
7 20
8 20
9 20
10 20

Search algorithm = DFS

Total iterations = 170

Max frontier size = 87

Vertices visited = 238/275

Path length = 53

===== << END >> =====

Vertices=275, edges=641

Start=(10,1), goal=(10,20), vertices: 145 and 149

iter=1, frontier=0, popped=145 (10,1), depth=0, dist2goal=19.0

pushed 146 (10,2)

pushed 130 (9,1)

pushed 150 (11,1)

pushed 151 (11,2)

iter=2, frontier=3, popped=146 (10,2), depth=1, dist2goal=18.0

pushed 147 (10,3)

pushed 131 (9,2)

pushed 152 (11,3)

iter=3, frontier=5, popped=147 (10,3), depth=2, dist2goal=17.0

pushed 132 (9,3)

iter=4, frontier=5, popped=132 (9,3), depth=3, dist2goal=17.0

pushed 115 (8,3)

pushed 114 (8,2)

iter=5, frontier=6, popped=152 (11,3), depth=2, dist2goal=17.0

pushed 157 (12,3)

iter=6, frontier=6, popped=115 (8,3), depth=4, dist2goal=17.1

pushed 101 (7,3)

pushed 100 (7,2)

iter=7, frontier=7, popped=157 (12,3), depth=3, dist2goal=17.1

pushed 156 (12,2)

pushed 162 (13,3)

iter=8, frontier=8, popped=101 (7,3), depth=5, dist2goal=17.3

pushed 89 (6,3)

pushed 88 (6,2)

iter=9, frontier=9, popped=162 (13,3), depth=4, dist2goal=17.3

pushed 161 (13,2)

pushed 175 (14,3)

iter=10, frontier=10, popped=175 (14,3), depth=5, dist2goal=17.5
pushed 174 (14,2)
pushed 187 (15,3)
iter=11, frontier=11, popped=89 (6,3), depth=6, dist2goal=17.5
pushed 77 (5,3)
pushed 76 (5,2)
iter=12, frontier=12, popped=77 (5,3), depth=7, dist2goal=17.7
pushed 61 (4,3)
pushed 60 (4,2)
iter=13, frontier=13, popped=187 (15,3), depth=6, dist2goal=17.7
pushed 186 (15,2)
pushed 200 (16,3)
iter=14, frontier=14, popped=131 (9,2), depth=2, dist2goal=18.0
pushed 113 (8,1)
iter=15, frontier=14, popped=200 (16,3), depth=7, dist2goal=18.0
pushed 199 (16,2)
pushed 213 (17,3)
iter=16, frontier=15, popped=151 (11,2), depth=1, dist2goal=18.0
iter=17, frontier=14, popped=61 (4,3), depth=8, dist2goal=18.0
pushed 62 (4,4)
pushed 42 (3,3)
pushed 41 (3,2)
iter=18, frontier=16, popped=62 (4,4), depth=9, dist2goal=17.1
pushed 63 (4,5)
pushed 43 (3,4)
iter=19, frontier=17, popped=63 (4,5), depth=10, dist2goal=16.2
pushed 64 (4,6)
pushed 44 (3,5)
iter=20, frontier=18, popped=64 (4,6), depth=11, dist2goal=15.2
pushed 65 (4,7)
pushed 45 (3,6)
iter=21, frontier=19, popped=65 (4,7), depth=12, dist2goal=14.3
pushed 66 (4,8)
pushed 46 (3,7)
iter=22, frontier=20, popped=66 (4,8), depth=13, dist2goal=13.4
pushed 67 (4,9)
pushed 78 (5,8)
pushed 47 (3,8)
iter=23, frontier=22, popped=67 (4,9), depth=14, dist2goal=12.5
pushed 68 (4,10)
pushed 48 (3,9)
iter=24, frontier=23, popped=68 (4,10), depth=15, dist2goal=11.7
pushed 49 (3,10)
pushed 50 (3,11)
pushed 51 (3,12)
pushed 52 (3,13)
iter=25, frontier=26, popped=52 (3,13), depth=16, dist2goal=9.9
pushed 32 (2,13)
pushed 31 (2,12)

iter=26, frontier=27, popped=32 (2,13), depth=17, dist2goal=10.6
pushed 33 (2,14)
pushed 12 (1,13)
pushed 11 (1,12)
iter=27, frontier=29, popped=33 (2,14), depth=18, dist2goal=10.0
pushed 34 (2,15)
pushed 13 (1,14)
pushed 53 (3,15)
iter=28, frontier=31, popped=53 (3,15), depth=19, dist2goal=8.6
pushed 54 (3,16)
pushed 69 (4,15)
pushed 70 (4,16)
iter=29, frontier=33, popped=70 (4,16), depth=20, dist2goal=7.2
pushed 71 (4,17)
pushed 82 (5,16)
pushed 83 (5,17)
iter=30, frontier=35, popped=83 (5,17), depth=21, dist2goal=5.8
pushed 84 (5,18)
pushed 95 (6,17)
pushed 96 (6,18)
iter=31, frontier=37, popped=96 (6,18), depth=22, dist2goal=4.5
pushed 97 (6,19)
pushed 110 (7,18)
pushed 111 (7,19)
iter=32, frontier=39, popped=111 (7,19), depth=23, dist2goal=3.2
pushed 112 (7,20)
pushed 128 (8,19)
pushed 129 (8,20)
iter=33, frontier=41, popped=129 (8,20), depth=24, dist2goal=2.0
pushed 144 (9,20)
iter=34, frontier=41, popped=144 (9,20), depth=25, dist2goal=1.0
pushed 143 (9,19)
pushed 149 (10,20)

=====

Solution path:

10 1
10 2
10 3
9 3
8 3
7 3
6 3
5 3
4 3
4 4
4 5
4 6
4 7
4 8

4 9
4 10
3 13
2 13
2 14
3 15
4 16
5 17
6 18
7 19
8 20
9 20
10 20

Search algorithm = GBFS

Total iterations = 34

Max frontier size = 43

Vertices visited = 76/275

Path length = 26

===== << END >> =====

Vertices=275, edges=641

Start=(10,1), goal=(10,20), vertices: 145 and 149

iter=1, frontier=0, popped=145 (10,1), depth=0, dist2goal=19.0

pushed 146 (10,2)

pushed 130 (9,1)

pushed 150 (11,1)

pushed 151 (11,2)

iter=2, frontier=3, popped=146 (10,2), depth=1, dist2goal=18.0

pushed 147 (10,3)

pushed 131 (9,2)

pushed 152 (11,3)

iter=3, frontier=5, popped=147 (10,3), depth=2, dist2goal=17.0

pushed 132 (9,3)

iter=4, frontier=5, popped=132 (9,3), depth=3, dist2goal=17.0

pushed 115 (8,3)

pushed 114 (8,2)

iter=5, frontier=6, popped=152 (11,3), depth=2, dist2goal=17.0

pushed 157 (12,3)

iter=6, frontier=6, popped=131 (9,2), depth=2, dist2goal=18.0

pushed 113 (8,1)

iter=7, frontier=6, popped=151 (11,2), depth=1, dist2goal=18.0

pushed 156 (12,2)

iter=8, frontier=6, popped=115 (8,3), depth=4, dist2goal=17.1

pushed 101 (7,3)

pushed 100 (7,2)

iter=9, frontier=7, popped=157 (12,3), depth=3, dist2goal=17.1

pushed 162 (13,3)

iter=10, frontier=7, popped=130 (9,1), depth=1, dist2goal=19.0

iter=11, frontier=6, popped=150 (11,1), depth=1, dist2goal=19.0

pushed 155 (12,1)
iter=12, frontier=6, popped=114 (8,2), depth=4, dist2goal=18.1
pushed 99 (7,1)
iter=13, frontier=6, popped=156 (12,2), depth=2, dist2goal=18.1
pushed 161 (13,2)
iter=14, frontier=6, popped=101 (7,3), depth=5, dist2goal=17.3
pushed 89 (6,3)
pushed 88 (6,2)
iter=15, frontier=7, popped=162 (13,3), depth=4, dist2goal=17.3
pushed 175 (14,3)
iter=16, frontier=7, popped=113 (8,1), depth=3, dist2goal=19.1
iter=17, frontier=6, popped=155 (12,1), depth=2, dist2goal=19.1
pushed 160 (13,1)
iter=18, frontier=6, popped=161 (13,2), depth=3, dist2goal=18.2
pushed 174 (14,2)
iter=19, frontier=6, popped=100 (7,2), depth=5, dist2goal=18.2
pushed 87 (6,1)
iter=20, frontier=6, popped=175 (14,3), depth=5, dist2goal=17.5
pushed 187 (15,3)
iter=21, frontier=6, popped=89 (6,3), depth=6, dist2goal=17.5
pushed 77 (5,3)
pushed 76 (5,2)
iter=22, frontier=7, popped=160 (13,1), depth=3, dist2goal=19.2
pushed 173 (14,1)
iter=23, frontier=7, popped=99 (7,1), depth=5, dist2goal=19.2
iter=24, frontier=6, popped=174 (14,2), depth=4, dist2goal=18.4
pushed 186 (15,2)
iter=25, frontier=6, popped=88 (6,2), depth=6, dist2goal=18.4
pushed 75 (5,1)
iter=26, frontier=6, popped=77 (5,3), depth=7, dist2goal=17.7
pushed 61 (4,3)
pushed 60 (4,2)
iter=27, frontier=7, popped=187 (15,3), depth=6, dist2goal=17.7
pushed 200 (16,3)
iter=28, frontier=7, popped=173 (14,1), depth=4, dist2goal=19.4
pushed 185 (15,1)
iter=29, frontier=7, popped=87 (6,1), depth=6, dist2goal=19.4
iter=30, frontier=6, popped=76 (5,2), depth=7, dist2goal=18.7
pushed 59 (4,1)
iter=31, frontier=6, popped=186 (15,2), depth=5, dist2goal=18.7
pushed 199 (16,2)
iter=32, frontier=6, popped=200 (16,3), depth=7, dist2goal=18.0
pushed 213 (17,3)
iter=33, frontier=6, popped=61 (4,3), depth=8, dist2goal=18.0
pushed 62 (4,4)
pushed 42 (3,3)
pushed 41 (3,2)
iter=34, frontier=8, popped=62 (4,4), depth=9, dist2goal=17.1
pushed 63 (4,5)

pushed 43 (3,4)
iter=35, frontier=9, popped=63 (4,5), depth=10, dist2goal=16.2
pushed 64 (4,6)
pushed 44 (3,5)
iter=36, frontier=10, popped=64 (4,6), depth=11, dist2goal=15.2
pushed 65 (4,7)
pushed 45 (3,6)
iter=37, frontier=11, popped=65 (4,7), depth=12, dist2goal=14.3
pushed 66 (4,8)
pushed 46 (3,7)
iter=38, frontier=12, popped=66 (4,8), depth=13, dist2goal=13.4
pushed 67 (4,9)
pushed 78 (5,8)
pushed 47 (3,8)
iter=39, frontier=14, popped=78 (5,8), depth=14, dist2goal=13.0
pushed 90 (6,8)
iter=40, frontier=14, popped=90 (6,8), depth=15, dist2goal=12.6
pushed 104 (7,8)
iter=41, frontier=14, popped=104 (7,8), depth=16, dist2goal=12.4
pushed 103 (7,7)
pushed 105 (7,9)
pushed 118 (8,8)
pushed 119 (8,9)
iter=42, frontier=17, popped=119 (8,9), depth=17, dist2goal=11.2
pushed 120 (8,10)
pushed 136 (9,9)
pushed 137 (9,10)
iter=43, frontier=19, popped=137 (9,10), depth=18, dist2goal=10.0
pushed 138 (9,11)
iter=44, frontier=19, popped=138 (9,11), depth=19, dist2goal=9.1
pushed 139 (9,12)
pushed 121 (8,11)
iter=45, frontier=20, popped=136 (9,9), depth=18, dist2goal=11.0
pushed 135 (9,8)
iter=46, frontier=20, popped=139 (9,12), depth=20, dist2goal=8.1
pushed 140 (9,13)
pushed 122 (8,12)
iter=47, frontier=21, popped=140 (9,13), depth=21, dist2goal=7.1
pushed 141 (9,14)
pushed 123 (8,13)
iter=48, frontier=22, popped=135 (9,8), depth=19, dist2goal=12.0
pushed 134 (9,7)
pushed 117 (8,7)
iter=49, frontier=23, popped=134 (9,7), depth=20, dist2goal=13.0
pushed 133 (9,6)
pushed 116 (8,6)
iter=50, frontier=24, popped=141 (9,14), depth=22, dist2goal=6.1
pushed 142 (9,15)
iter=51, frontier=24, popped=133 (9,6), depth=21, dist2goal=14.0

iter=52, frontier=23, popped=142 (9,15), depth=23, dist2goal=5.1
pushed 124 (8,15)
iter=53, frontier=23, popped=121 (8,11), depth=20, dist2goal=9.2
pushed 106 (7,10)
iter=54, frontier=23, popped=120 (8,10), depth=18, dist2goal=10.2
iter=55, frontier=22, popped=122 (8,12), depth=21, dist2goal=8.2
iter=56, frontier=21, popped=123 (8,13), depth=22, dist2goal=7.3
iter=57, frontier=20, popped=118 (8,8), depth=17, dist2goal=12.2
iter=58, frontier=19, popped=117 (8,7), depth=20, dist2goal=13.2
pushed 102 (7,6)
iter=59, frontier=19, popped=124 (8,15), depth=24, dist2goal=5.4
pushed 125 (8,16)
pushed 107 (7,15)
iter=60, frontier=20, popped=116 (8,6), depth=21, dist2goal=14.1
iter=61, frontier=19, popped=125 (8,16), depth=25, dist2goal=4.5
pushed 126 (8,17)
pushed 108 (7,16)
iter=62, frontier=20, popped=126 (8,17), depth=26, dist2goal=3.6
pushed 127 (8,18)
pushed 109 (7,17)
iter=63, frontier=21, popped=106 (7,10), depth=21, dist2goal=10.4
iter=64, frontier=20, popped=127 (8,18), depth=27, dist2goal=2.8
pushed 128 (8,19)
pushed 110 (7,18)
pushed 143 (9,19)
pushed 148 (10,19)
pushed 153 (11,19)
iter=65, frontier=24, popped=148 (10,19), depth=28, dist2goal=1.0
pushed 149 (10,20)
pushed 154 (11,20)

=====
Solution path:

10 1
10 2
10 3
9 3
8 3
7 3
6 3
5 3
4 3
4 4
4 5
4 6
4 7
4 8
5 8
6 8
7 8

8 9
9 10
9 11
9 12
9 13
9 14
9 15
8 15
8 16
8 17
8 18
10 19
10 20

Search algorithm = ASTAR

Total iterations = 65

Max frontier size = 26

Vertices visited = 90/275

Path length = 29

===== << END >> =====

Vertices=275, edges=641

Start=(13,6), goal=(7,6), vertices: 163 and 102

iter=1, frontier=0, popped=163 (13,6), depth=0, dist2goal=6.0

pushed 164 (13,7)

pushed 176 (14,6)

pushed 177 (14,7)

iter=2, frontier=2, popped=164 (13,7), depth=1, dist2goal=6.1

pushed 165 (13,8)

pushed 178 (14,8)

iter=3, frontier=3, popped=176 (14,6), depth=1, dist2goal=7.0

iter=4, frontier=2, popped=177 (14,7), depth=1, dist2goal=7.1

pushed 188 (15,8)

pushed 201 (16,8)

iter=5, frontier=3, popped=165 (13,8), depth=2, dist2goal=6.3

iter=6, frontier=2, popped=178 (14,8), depth=2, dist2goal=7.3

iter=7, frontier=1, popped=188 (15,8), depth=2, dist2goal=8.2

pushed 202 (16,9)

pushed 203 (16,10)

iter=8, frontier=2, popped=201 (16,8), depth=2, dist2goal=9.2

pushed 214 (17,8)

iter=9, frontier=2, popped=202 (16,9), depth=3, dist2goal=9.5

iter=10, frontier=1, popped=203 (16,10), depth=3, dist2goal=9.8

iter=11, frontier=0, popped=214 (17,8), depth=3, dist2goal=10.2

pushed 230 (18,8)

pushed 229 (18,7)

pushed 228 (18,6)

pushed 227 (18,5)

iter=12, frontier=3, popped=230 (18,8), depth=4, dist2goal=11.2

pushed 244 (19,8)

iter=13, frontier=3, popped=229 (18,7), depth=4, dist2goal=11.0
pushed 243 (19,7)
iter=14, frontier=3, popped=228 (18,6), depth=4, dist2goal=11.0
pushed 242 (19,6)
iter=15, frontier=3, popped=227 (18,5), depth=4, dist2goal=11.0
pushed 226 (18,4)
pushed 241 (19,5)
pushed 213 (17,3)
iter=16, frontier=5, popped=244 (19,8), depth=5, dist2goal=12.2
pushed 262 (20,8)
pushed 263 (20,9)
iter=17, frontier=6, popped=243 (19,7), depth=5, dist2goal=12.0
pushed 261 (20,7)
iter=18, frontier=6, popped=242 (19,6), depth=5, dist2goal=12.0
pushed 260 (20,6)
iter=19, frontier=6, popped=226 (18,4), depth=5, dist2goal=11.2
pushed 225 (18,3)
pushed 240 (19,4)
iter=20, frontier=7, popped=241 (19,5), depth=5, dist2goal=12.0
pushed 259 (20,5)
iter=21, frontier=7, popped=213 (17,3), depth=5, dist2goal=10.4
pushed 212 (17,2)
pushed 200 (16,3)
pushed 199 (16,2)
iter=22, frontier=9, popped=262 (20,8), depth=6, dist2goal=13.2
iter=23, frontier=8, popped=263 (20,9), depth=6, dist2goal=13.3
pushed 264 (20,10)
pushed 245 (19,10)
iter=24, frontier=9, popped=261 (20,7), depth=6, dist2goal=13.0
iter=25, frontier=8, popped=260 (20,6), depth=6, dist2goal=13.0
iter=26, frontier=7, popped=225 (18,3), depth=6, dist2goal=11.4
pushed 224 (18,2)
pushed 239 (19,3)
iter=27, frontier=8, popped=240 (19,4), depth=6, dist2goal=12.2
pushed 258 (20,4)
iter=28, frontier=8, popped=259 (20,5), depth=6, dist2goal=13.0
iter=29, frontier=7, popped=212 (17,2), depth=6, dist2goal=10.8
pushed 211 (17,1)
pushed 198 (16,1)
iter=30, frontier=8, popped=200 (16,3), depth=6, dist2goal=9.5
pushed 187 (15,3)
pushed 186 (15,2)
iter=31, frontier=9, popped=199 (16,2), depth=6, dist2goal=9.8
pushed 185 (15,1)
iter=32, frontier=9, popped=264 (20,10), depth=7, dist2goal=13.6
pushed 265 (20,11)
iter=33, frontier=9, popped=245 (19,10), depth=7, dist2goal=12.6
pushed 246 (19,11)
iter=34, frontier=9, popped=224 (18,2), depth=7, dist2goal=11.7

pushed 223 (18,1)
pushed 238 (19,2)
iter=35, frontier=10, popped=239 (19,3), depth=7, dist2goal=12.4
pushed 257 (20,3)
iter=36, frontier=10, popped=258 (20,4), depth=7, dist2goal=13.2
iter=37, frontier=9, popped=211 (17,1), depth=7, dist2goal=11.2
iter=38, frontier=8, popped=198 (16,1), depth=7, dist2goal=10.3
iter=39, frontier=7, popped=187 (15,3), depth=7, dist2goal=8.5
pushed 175 (14,3)
pushed 174 (14,2)
iter=40, frontier=8, popped=186 (15,2), depth=7, dist2goal=8.9
pushed 173 (14,1)
iter=41, frontier=8, popped=185 (15,1), depth=7, dist2goal=9.4
iter=42, frontier=7, popped=265 (20,11), depth=8, dist2goal=13.9
pushed 266 (20,12)
iter=43, frontier=7, popped=246 (19,11), depth=8, dist2goal=13.0
pushed 247 (19,12)
iter=44, frontier=7, popped=223 (18,1), depth=8, dist2goal=12.1
pushed 237 (19,1)
iter=45, frontier=7, popped=238 (19,2), depth=8, dist2goal=12.6
pushed 256 (20,2)
iter=46, frontier=7, popped=257 (20,3), depth=8, dist2goal=13.3
iter=47, frontier=6, popped=175 (14,3), depth=8, dist2goal=7.6
pushed 162 (13,3)
pushed 161 (13,2)
iter=48, frontier=7, popped=174 (14,2), depth=8, dist2goal=8.1
pushed 160 (13,1)
iter=49, frontier=7, popped=173 (14,1), depth=8, dist2goal=8.6
iter=50, frontier=6, popped=266 (20,12), depth=9, dist2goal=14.3
pushed 267 (20,13)
iter=51, frontier=6, popped=247 (19,12), depth=9, dist2goal=13.4
pushed 248 (19,13)
iter=52, frontier=6, popped=237 (19,1), depth=9, dist2goal=13.0
pushed 255 (20,1)
iter=53, frontier=6, popped=256 (20,2), depth=9, dist2goal=13.6
iter=54, frontier=5, popped=162 (13,3), depth=9, dist2goal=6.7
pushed 157 (12,3)
pushed 156 (12,2)
iter=55, frontier=6, popped=161 (13,2), depth=9, dist2goal=7.2
pushed 155 (12,1)
iter=56, frontier=6, popped=160 (13,1), depth=9, dist2goal=7.8
iter=57, frontier=5, popped=267 (20,13), depth=10, dist2goal=14.8
pushed 268 (20,14)
iter=58, frontier=5, popped=248 (19,13), depth=10, dist2goal=13.9
iter=59, frontier=4, popped=255 (20,1), depth=10, dist2goal=13.9
iter=60, frontier=3, popped=157 (12,3), depth=10, dist2goal=5.8
pushed 152 (11,3)
pushed 151 (11,2)
iter=61, frontier=4, popped=156 (12,2), depth=10, dist2goal=6.4

pushed 150 (11,1)
iter=62, frontier=4, popped=155 (12,1), depth=10, dist2goal=7.1
iter=63, frontier=3, popped=268 (20,14), depth=11, dist2goal=15.3
pushed 269 (20,15)
pushed 249 (19,15)
pushed 231 (18,15)
iter=64, frontier=5, popped=152 (11,3), depth=11, dist2goal=5.0
pushed 147 (10,3)
pushed 146 (10,2)
iter=65, frontier=6, popped=151 (11,2), depth=11, dist2goal=5.7
pushed 145 (10,1)
iter=66, frontier=6, popped=150 (11,1), depth=11, dist2goal=6.4
iter=67, frontier=5, popped=269 (20,15), depth=12, dist2goal=15.8
pushed 270 (20,16)
iter=68, frontier=5, popped=249 (19,15), depth=12, dist2goal=15.0
pushed 250 (19,16)
iter=69, frontier=5, popped=231 (18,15), depth=12, dist2goal=14.2
pushed 232 (18,16)
pushed 217 (17,15)
pushed 204 (16,14)
iter=70, frontier=7, popped=147 (10,3), depth=12, dist2goal=4.2
pushed 132 (9,3)
pushed 131 (9,2)
iter=71, frontier=8, popped=146 (10,2), depth=12, dist2goal=5.0
pushed 130 (9,1)
iter=72, frontier=8, popped=145 (10,1), depth=12, dist2goal=5.8
iter=73, frontier=7, popped=270 (20,16), depth=13, dist2goal=16.4
pushed 271 (20,17)
iter=74, frontier=7, popped=250 (19,16), depth=13, dist2goal=15.6
pushed 251 (19,17)
iter=75, frontier=7, popped=232 (18,16), depth=13, dist2goal=14.9
pushed 233 (18,17)
pushed 218 (17,16)
iter=76, frontier=8, popped=217 (17,15), depth=13, dist2goal=13.5
pushed 205 (16,15)
iter=77, frontier=8, popped=204 (16,14), depth=13, dist2goal=12.0
pushed 191 (15,14)
pushed 190 (15,13)
pushed 216 (17,13)
pushed 215 (17,12)
iter=78, frontier=11, popped=132 (9,3), depth=13, dist2goal=3.6
pushed 115 (8,3)
pushed 114 (8,2)
iter=79, frontier=12, popped=131 (9,2), depth=13, dist2goal=4.5
pushed 113 (8,1)
iter=80, frontier=12, popped=130 (9,1), depth=13, dist2goal=5.4
iter=81, frontier=11, popped=271 (20,17), depth=14, dist2goal=17.0
pushed 272 (20,18)
iter=82, frontier=11, popped=251 (19,17), depth=14, dist2goal=16.3

pushed 252 (19,18)
iter=83, frontier=11, popped=233 (18,17), depth=14, dist2goal=15.6
pushed 234 (18,18)
pushed 219 (17,17)
iter=84, frontier=12, popped=218 (17,16), depth=14, dist2goal=14.1
pushed 206 (16,16)
iter=85, frontier=12, popped=205 (16,15), depth=14, dist2goal=12.7
pushed 192 (15,15)
iter=86, frontier=12, popped=191 (15,14), depth=14, dist2goal=11.3
iter=87, frontier=11, popped=190 (15,13), depth=14, dist2goal=10.6
pushed 189 (15,12)
iter=88, frontier=11, popped=216 (17,13), depth=14, dist2goal=12.2
iter=89, frontier=10, popped=215 (17,12), depth=14, dist2goal=11.7
iter=90, frontier=9, popped=115 (8,3), depth=14, dist2goal=3.2
pushed 101 (7,3)
pushed 100 (7,2)
iter=91, frontier=10, popped=114 (8,2), depth=14, dist2goal=4.1
pushed 99 (7,1)
iter=92, frontier=10, popped=113 (8,1), depth=14, dist2goal=5.1
iter=93, frontier=9, popped=272 (20,18), depth=15, dist2goal=17.7
pushed 273 (20,19)
iter=94, frontier=9, popped=252 (19,18), depth=15, dist2goal=17.0
pushed 253 (19,19)
iter=95, frontier=9, popped=234 (18,18), depth=15, dist2goal=16.3
pushed 235 (18,19)
pushed 220 (17,18)
iter=96, frontier=10, popped=219 (17,17), depth=15, dist2goal=14.9
pushed 207 (16,17)
iter=97, frontier=10, popped=206 (16,16), depth=15, dist2goal=13.5
pushed 193 (15,16)
iter=98, frontier=10, popped=192 (15,15), depth=15, dist2goal=12.0
pushed 179 (14,15)
iter=99, frontier=10, popped=189 (15,12), depth=15, dist2goal=10.0
iter=100, frontier=9, popped=101 (7,3), depth=15, dist2goal=3.0
pushed 89 (6,3)
pushed 88 (6,2)
iter=101, frontier=10, popped=100 (7,2), depth=15, dist2goal=4.0
pushed 87 (6,1)
iter=102, frontier=10, popped=99 (7,1), depth=15, dist2goal=5.0
iter=103, frontier=9, popped=273 (20,19), depth=16, dist2goal=18.4
pushed 274 (20,20)
iter=104, frontier=9, popped=253 (19,19), depth=16, dist2goal=17.7
pushed 254 (19,20)
iter=105, frontier=9, popped=235 (18,19), depth=16, dist2goal=17.0
pushed 236 (18,20)
pushed 221 (17,19)
iter=106, frontier=10, popped=220 (17,18), depth=16, dist2goal=15.6
pushed 208 (16,18)
iter=107, frontier=10, popped=207 (16,17), depth=16, dist2goal=14.2

pushed 194 (15,17)
iter=108, frontier=10, popped=193 (15,16), depth=16, dist2goal=12.8
pushed 180 (14,16)
iter=109, frontier=10, popped=179 (14,15), depth=16, dist2goal=11.4
pushed 170 (13,15)
iter=110, frontier=10, popped=89 (6,3), depth=16, dist2goal=3.2
pushed 77 (5,3)
pushed 76 (5,2)
iter=111, frontier=11, popped=88 (6,2), depth=16, dist2goal=4.1
pushed 75 (5,1)
iter=112, frontier=11, popped=87 (6,1), depth=16, dist2goal=5.1
iter=113, frontier=10, popped=274 (20,20), depth=17, dist2goal=19.1
iter=114, frontier=9, popped=254 (19,20), depth=17, dist2goal=18.4
iter=115, frontier=8, popped=236 (18,20), depth=17, dist2goal=17.8
pushed 222 (17,20)
iter=116, frontier=8, popped=221 (17,19), depth=17, dist2goal=16.4
pushed 209 (16,19)
iter=117, frontier=8, popped=208 (16,18), depth=17, dist2goal=15.0
pushed 195 (15,18)
iter=118, frontier=8, popped=194 (15,17), depth=17, dist2goal=13.6
pushed 181 (14,17)
iter=119, frontier=8, popped=180 (14,16), depth=17, dist2goal=12.2
iter=120, frontier=7, popped=170 (13,15), depth=17, dist2goal=10.8
iter=121, frontier=6, popped=77 (5,3), depth=17, dist2goal=3.6
pushed 61 (4,3)
pushed 60 (4,2)
iter=122, frontier=7, popped=76 (5,2), depth=17, dist2goal=4.5
pushed 59 (4,1)
iter=123, frontier=7, popped=75 (5,1), depth=17, dist2goal=5.4
iter=124, frontier=6, popped=222 (17,20), depth=18, dist2goal=17.2
pushed 210 (16,20)
iter=125, frontier=6, popped=209 (16,19), depth=18, dist2goal=15.8
pushed 196 (15,19)
iter=126, frontier=6, popped=195 (15,18), depth=18, dist2goal=14.4
pushed 182 (14,18)
iter=127, frontier=6, popped=181 (14,17), depth=18, dist2goal=13.0
pushed 171 (13,19)
iter=128, frontier=6, popped=61 (4,3), depth=18, dist2goal=4.2
pushed 62 (4,4)
pushed 42 (3,3)
pushed 41 (3,2)
iter=129, frontier=8, popped=60 (4,2), depth=18, dist2goal=5.0
pushed 40 (3,1)
iter=130, frontier=8, popped=59 (4,1), depth=18, dist2goal=5.8
iter=131, frontier=7, popped=210 (16,20), depth=19, dist2goal=16.6
pushed 197 (15,20)
iter=132, frontier=7, popped=196 (15,19), depth=19, dist2goal=15.3
pushed 183 (14,19)
iter=133, frontier=7, popped=182 (14,18), depth=19, dist2goal=13.9

iter=134, frontier=6, popped=171 (13,19), depth=19, dist2goal=14.3
pushed 172 (13,20)
pushed 158 (12,19)
pushed 184 (14,20)
iter=135, frontier=8, popped=62 (4,4), depth=19, dist2goal=3.6
pushed 63 (4,5)
pushed 43 (3,4)
iter=136, frontier=9, popped=42 (3,3), depth=19, dist2goal=5.0
pushed 22 (2,3)
pushed 21 (2,2)
iter=137, frontier=10, popped=41 (3,2), depth=19, dist2goal=5.7
pushed 20 (2,1)
iter=138, frontier=10, popped=40 (3,1), depth=19, dist2goal=6.4
iter=139, frontier=9, popped=197 (15,20), depth=20, dist2goal=16.1
iter=140, frontier=8, popped=183 (14,19), depth=20, dist2goal=14.8
iter=141, frontier=7, popped=172 (13,20), depth=20, dist2goal=15.2
pushed 159 (12,20)
iter=142, frontier=7, popped=158 (12,19), depth=20, dist2goal=13.9
pushed 153 (11,19)
iter=143, frontier=7, popped=184 (14,20), depth=20, dist2goal=15.7
iter=144, frontier=6, popped=63 (4,5), depth=20, dist2goal=3.2
pushed 64 (4,6)
pushed 44 (3,5)
iter=145, frontier=7, popped=43 (3,4), depth=20, dist2goal=4.5
pushed 23 (2,4)
iter=146, frontier=7, popped=22 (2,3), depth=20, dist2goal=5.8
pushed 2 (1,3)
pushed 1 (1,2)
iter=147, frontier=8, popped=21 (2,2), depth=20, dist2goal=6.4
pushed 0 (1,1)
iter=148, frontier=8, popped=20 (2,1), depth=20, dist2goal=7.1
iter=149, frontier=7, popped=159 (12,20), depth=21, dist2goal=14.9
pushed 154 (11,20)
iter=150, frontier=7, popped=153 (11,19), depth=21, dist2goal=13.6
pushed 148 (10,19)
pushed 127 (8,18)
iter=151, frontier=8, popped=64 (4,6), depth=21, dist2goal=3.0
pushed 65 (4,7)
pushed 45 (3,6)
iter=152, frontier=9, popped=44 (3,5), depth=21, dist2goal=4.1
pushed 24 (2,5)
iter=153, frontier=9, popped=23 (2,4), depth=21, dist2goal=5.4
pushed 3 (1,4)
iter=154, frontier=9, popped=2 (1,3), depth=21, dist2goal=6.7
iter=155, frontier=8, popped=1 (1,2), depth=21, dist2goal=7.2
iter=156, frontier=7, popped=0 (1,1), depth=21, dist2goal=7.8
iter=157, frontier=6, popped=154 (11,20), depth=22, dist2goal=14.6
pushed 149 (10,20)
iter=158, frontier=6, popped=148 (10,19), depth=22, dist2goal=13.3

pushed 143 (9,19)
iter=159, frontier=6, popped=127 (8,18), depth=22, dist2goal=12.0
pushed 128 (8,19)
pushed 126 (8,17)
pushed 110 (7,18)
pushed 109 (7,17)
iter=160, frontier=9, popped=65 (4,7), depth=22, dist2goal=3.2
pushed 66 (4,8)
pushed 46 (3,7)
iter=161, frontier=10, popped=45 (3,6), depth=22, dist2goal=4.0
pushed 25 (2,6)
iter=162, frontier=10, popped=24 (2,5), depth=22, dist2goal=5.1
pushed 4 (1,5)
iter=163, frontier=10, popped=3 (1,4), depth=22, dist2goal=6.3
iter=164, frontier=9, popped=149 (10,20), depth=23, dist2goal=14.3
pushed 144 (9,20)
iter=165, frontier=9, popped=143 (9,19), depth=23, dist2goal=13.2
iter=166, frontier=8, popped=128 (8,19), depth=23, dist2goal=13.0
pushed 129 (8,20)
pushed 111 (7,19)
iter=167, frontier=9, popped=126 (8,17), depth=23, dist2goal=11.0
pushed 125 (8,16)
pushed 108 (7,16)
iter=168, frontier=10, popped=110 (7,18), depth=23, dist2goal=12.0
pushed 96 (6,18)
pushed 95 (6,17)
iter=169, frontier=11, popped=109 (7,17), depth=23, dist2goal=11.0
pushed 94 (6,16)
iter=170, frontier=11, popped=66 (4,8), depth=23, dist2goal=3.6
pushed 67 (4,9)
pushed 78 (5,8)
pushed 47 (3,8)
iter=171, frontier=13, popped=46 (3,7), depth=23, dist2goal=4.1
pushed 26 (2,7)
iter=172, frontier=13, popped=25 (2,6), depth=23, dist2goal=5.0
pushed 5 (1,6)
iter=173, frontier=13, popped=4 (1,5), depth=23, dist2goal=6.1
iter=174, frontier=12, popped=144 (9,20), depth=24, dist2goal=14.1
iter=175, frontier=11, popped=129 (8,20), depth=24, dist2goal=14.0
pushed 112 (7,20)
iter=176, frontier=11, popped=111 (7,19), depth=24, dist2goal=13.0
pushed 97 (6,19)
iter=177, frontier=11, popped=125 (8,16), depth=24, dist2goal=10.0
pushed 124 (8,15)
pushed 107 (7,15)
iter=178, frontier=12, popped=108 (7,16), depth=24, dist2goal=10.0
pushed 93 (6,15)
iter=179, frontier=12, popped=96 (6,18), depth=24, dist2goal=12.0
pushed 84 (5,18)

pushed 83 (5,17)
iter=180, frontier=13, popped=95 (6,17), depth=24, dist2goal=11.0
pushed 82 (5,16)
iter=181, frontier=13, popped=94 (6,16), depth=24, dist2goal=10.0
pushed 81 (5,15)
iter=182, frontier=13, popped=67 (4,9), depth=24, dist2goal=4.2
pushed 68 (4,10)
pushed 48 (3,9)
iter=183, frontier=14, popped=78 (5,8), depth=24, dist2goal=2.8
pushed 90 (6,8)
iter=184, frontier=14, popped=47 (3,8), depth=24, dist2goal=4.5
pushed 27 (2,8)
iter=185, frontier=14, popped=26 (2,7), depth=24, dist2goal=5.1
pushed 6 (1,7)
iter=186, frontier=14, popped=5 (1,6), depth=24, dist2goal=6.0
iter=187, frontier=13, popped=112 (7,20), depth=25, dist2goal=14.0
pushed 98 (6,20)
iter=188, frontier=13, popped=97 (6,19), depth=25, dist2goal=13.0
pushed 85 (5,19)
iter=189, frontier=13, popped=124 (8,15), depth=25, dist2goal=9.1
pushed 142 (9,15)
iter=190, frontier=13, popped=107 (7,15), depth=25, dist2goal=9.0
pushed 92 (6,14)
iter=191, frontier=13, popped=93 (6,15), depth=25, dist2goal=9.1
pushed 80 (5,14)
iter=192, frontier=13, popped=84 (5,18), depth=25, dist2goal=12.2
pushed 72 (4,18)
pushed 71 (4,17)
iter=193, frontier=14, popped=83 (5,17), depth=25, dist2goal=11.2
pushed 70 (4,16)
iter=194, frontier=14, popped=82 (5,16), depth=25, dist2goal=10.2
pushed 69 (4,15)
iter=195, frontier=14, popped=81 (5,15), depth=25, dist2goal=9.2
iter=196, frontier=13, popped=68 (4,10), depth=25, dist2goal=5.0
pushed 49 (3,10)
pushed 50 (3,11)
pushed 51 (3,12)
pushed 52 (3,13)
iter=197, frontier=16, popped=48 (3,9), depth=25, dist2goal=5.0
pushed 28 (2,9)
iter=198, frontier=16, popped=90 (6,8), depth=25, dist2goal=2.2
pushed 104 (7,8)
iter=199, frontier=16, popped=27 (2,8), depth=25, dist2goal=5.4
pushed 7 (1,8)
iter=200, frontier=16, popped=6 (1,7), depth=25, dist2goal=6.1
iter=201, frontier=15, popped=98 (6,20), depth=26, dist2goal=14.0
pushed 86 (5,20)
iter=202, frontier=15, popped=85 (5,19), depth=26, dist2goal=13.2
pushed 73 (4,19)

iter=203, frontier=15, popped=142 (9,15), depth=26, dist2goal=9.2
pushed 141 (9,14)
iter=204, frontier=15, popped=92 (6,14), depth=26, dist2goal=8.1
pushed 91 (6,13)
pushed 79 (5,13)
iter=205, frontier=16, popped=80 (5,14), depth=26, dist2goal=8.2
iter=206, frontier=15, popped=72 (4,18), depth=26, dist2goal=12.4
pushed 56 (3,18)
pushed 55 (3,17)
iter=207, frontier=16, popped=71 (4,17), depth=26, dist2goal=11.4
pushed 54 (3,16)
iter=208, frontier=16, popped=70 (4,16), depth=26, dist2goal=10.4
pushed 53 (3,15)
iter=209, frontier=16, popped=69 (4,15), depth=26, dist2goal=9.5
iter=210, frontier=15, popped=49 (3,10), depth=26, dist2goal=5.7
pushed 29 (2,10)
iter=211, frontier=15, popped=50 (3,11), depth=26, dist2goal=6.4
pushed 30 (2,11)
iter=212, frontier=15, popped=51 (3,12), depth=26, dist2goal=7.2
pushed 31 (2,12)
iter=213, frontier=15, popped=52 (3,13), depth=26, dist2goal=8.1
pushed 32 (2,13)
iter=214, frontier=15, popped=28 (2,9), depth=26, dist2goal=5.8
pushed 8 (1,9)
iter=215, frontier=15, popped=104 (7,8), depth=26, dist2goal=2.0
pushed 103 (7,7)
pushed 105 (7,9)
pushed 118 (8,8)
pushed 119 (8,9)
iter=216, frontier=18, popped=7 (1,8), depth=26, dist2goal=6.3
iter=217, frontier=17, popped=86 (5,20), depth=27, dist2goal=14.1
pushed 74 (4,20)
iter=218, frontier=17, popped=73 (4,19), depth=27, dist2goal=13.3
pushed 57 (3,19)
iter=219, frontier=17, popped=141 (9,14), depth=27, dist2goal=8.2
pushed 140 (9,13)
iter=220, frontier=17, popped=91 (6,13), depth=27, dist2goal=7.1
iter=221, frontier=16, popped=79 (5,13), depth=27, dist2goal=7.3
iter=222, frontier=15, popped=56 (3,18), depth=27, dist2goal=12.6
pushed 37 (2,18)
pushed 36 (2,17)
iter=223, frontier=16, popped=55 (3,17), depth=27, dist2goal=11.7
pushed 35 (2,16)
iter=224, frontier=16, popped=54 (3,16), depth=27, dist2goal=10.8
pushed 34 (2,15)
iter=225, frontier=16, popped=53 (3,15), depth=27, dist2goal=9.8
pushed 33 (2,14)
iter=226, frontier=16, popped=29 (2,10), depth=27, dist2goal=6.4
pushed 9 (1,10)

iter=227, frontier=16, popped=30 (2,11), depth=27, dist2goal=7.1
pushed 10 (1,11)
iter=228, frontier=16, popped=31 (2,12), depth=27, dist2goal=7.8
pushed 11 (1,12)
iter=229, frontier=16, popped=32 (2,13), depth=27, dist2goal=8.6
pushed 12 (1,13)
iter=230, frontier=16, popped=8 (1,9), depth=27, dist2goal=6.7
iter=231, frontier=15, popped=103 (7,7), depth=27, dist2goal=1.0
pushed 102 (7,6)
pushed 117 (8,7)
iter=232, frontier=16, popped=105 (7,9), depth=27, dist2goal=3.0
pushed 106 (7,10)
pushed 120 (8,10)
iter=233, frontier=17, popped=118 (8,8), depth=27, dist2goal=2.2
pushed 135 (9,8)
pushed 136 (9,9)
iter=234, frontier=18, popped=119 (8,9), depth=27, dist2goal=3.2
pushed 137 (9,10)
iter=235, frontier=18, popped=74 (4,20), depth=28, dist2goal=14.3
pushed 58 (3,20)
iter=236, frontier=18, popped=57 (3,19), depth=28, dist2goal=13.6
pushed 38 (2,19)
iter=237, frontier=18, popped=140 (9,13), depth=28, dist2goal=7.3
pushed 139 (9,12)
pushed 123 (8,13)
pushed 122 (8,12)
iter=238, frontier=20, popped=37 (2,18), depth=28, dist2goal=13.0
pushed 17 (1,18)
pushed 16 (1,17)
iter=239, frontier=21, popped=36 (2,17), depth=28, dist2goal=12.1
pushed 15 (1,16)
iter=240, frontier=21, popped=35 (2,16), depth=28, dist2goal=11.2
pushed 14 (1,15)
iter=241, frontier=21, popped=34 (2,15), depth=28, dist2goal=10.3
pushed 13 (1,14)
iter=242, frontier=21, popped=33 (2,14), depth=28, dist2goal=9.4
iter=243, frontier=20, popped=9 (1,10), depth=28, dist2goal=7.2
iter=244, frontier=19, popped=10 (1,11), depth=28, dist2goal=7.8
iter=245, frontier=18, popped=11 (1,12), depth=28, dist2goal=8.5
iter=246, frontier=17, popped=12 (1,13), depth=28, dist2goal=9.2
iter=247, frontier=16, popped=102 (7,6), depth=28, dist2goal=0.0

=====

Solution path:

13 6
14 7
16 8
17 8
18 5
17 3

16 3
15 3
14 3
13 3
12 3
11 3
10 3
9 3
8 3
7 3
6 3
5 3
4 3
4 4
4 5
4 6
4 7
4 8
5 8
6 8
7 8
7 7
7 6

Search algorithm = BFS

Total iterations = 247

Max frontier size = 22

Vertices visited = 262/275

Path length = 28

===== << END >> =====

Vertices=275, edges=641

Start=(13,6), goal=(7,6), vertices: 163 and 102

iter=1, frontier=0, popped=163 (13,6), depth=0, dist2goal=6.0

pushed 164 (13,7)

pushed 176 (14,6)

pushed 177 (14,7)

iter=2, frontier=2, popped=177 (14,7), depth=1, dist2goal=7.1

pushed 178 (14,8)

pushed 188 (15,8)

pushed 201 (16,8)

iter=3, frontier=4, popped=201 (16,8), depth=2, dist2goal=9.2

pushed 202 (16,9)

pushed 214 (17,8)

iter=4, frontier=5, popped=214 (17,8), depth=3, dist2goal=10.2

pushed 230 (18,8)

pushed 229 (18,7)

pushed 203 (16,10)

pushed 228 (18,6)

pushed 227 (18,5)
iter=5, frontier=9, popped=227 (18,5), depth=4, dist2goal=11.0
pushed 226 (18,4)
pushed 241 (19,5)
pushed 242 (19,6)
pushed 213 (17,3)
iter=6, frontier=12, popped=213 (17,3), depth=5, dist2goal=10.4
pushed 212 (17,2)
pushed 200 (16,3)
pushed 225 (18,3)
pushed 199 (16,2)
iter=7, frontier=15, popped=199 (16,2), depth=6, dist2goal=9.8
pushed 198 (16,1)
pushed 186 (15,2)
pushed 185 (15,1)
iter=8, frontier=17, popped=185 (15,1), depth=7, dist2goal=9.4
pushed 173 (14,1)
iter=9, frontier=17, popped=173 (14,1), depth=8, dist2goal=8.6
pushed 174 (14,2)
pushed 160 (13,1)
iter=10, frontier=18, popped=160 (13,1), depth=9, dist2goal=7.8
pushed 161 (13,2)
pushed 155 (12,1)
iter=11, frontier=19, popped=155 (12,1), depth=10, dist2goal=7.1
pushed 156 (12,2)
pushed 150 (11,1)
iter=12, frontier=20, popped=150 (11,1), depth=11, dist2goal=6.4
pushed 151 (11,2)
pushed 145 (10,1)
iter=13, frontier=21, popped=145 (10,1), depth=12, dist2goal=5.8
pushed 146 (10,2)
pushed 130 (9,1)
iter=14, frontier=22, popped=130 (9,1), depth=13, dist2goal=5.4
pushed 131 (9,2)
pushed 113 (8,1)
iter=15, frontier=23, popped=113 (8,1), depth=14, dist2goal=5.1
pushed 114 (8,2)
pushed 99 (7,1)
iter=16, frontier=24, popped=99 (7,1), depth=15, dist2goal=5.0
pushed 100 (7,2)
pushed 87 (6,1)
iter=17, frontier=25, popped=87 (6,1), depth=16, dist2goal=5.1
pushed 88 (6,2)
pushed 75 (5,1)
iter=18, frontier=26, popped=75 (5,1), depth=17, dist2goal=5.4
pushed 76 (5,2)
pushed 59 (4,1)
iter=19, frontier=27, popped=59 (4,1), depth=18, dist2goal=5.8
pushed 60 (4,2)

pushed 40 (3,1)
iter=20, frontier=28, popped=40 (3,1), depth=19, dist2goal=6.4
pushed 41 (3,2)
pushed 20 (2,1)
iter=21, frontier=29, popped=20 (2,1), depth=20, dist2goal=7.1
pushed 21 (2,2)
pushed 0 (1,1)
iter=22, frontier=30, popped=0 (1,1), depth=21, dist2goal=7.8
pushed 1 (1,2)
iter=23, frontier=30, popped=1 (1,2), depth=22, dist2goal=7.2
pushed 2 (1,3)
pushed 22 (2,3)
iter=24, frontier=31, popped=22 (2,3), depth=23, dist2goal=5.8
pushed 23 (2,4)
pushed 42 (3,3)
pushed 43 (3,4)
iter=25, frontier=33, popped=43 (3,4), depth=24, dist2goal=4.5
pushed 44 (3,5)
pushed 62 (4,4)
pushed 63 (4,5)
iter=26, frontier=35, popped=63 (4,5), depth=25, dist2goal=3.2
pushed 64 (4,6)
iter=27, frontier=35, popped=64 (4,6), depth=26, dist2goal=3.0
pushed 65 (4,7)
pushed 45 (3,6)
iter=28, frontier=36, popped=45 (3,6), depth=27, dist2goal=4.0
pushed 46 (3,7)
pushed 25 (2,6)
pushed 24 (2,5)
iter=29, frontier=38, popped=24 (2,5), depth=28, dist2goal=5.1
pushed 4 (1,5)
pushed 3 (1,4)
iter=30, frontier=39, popped=3 (1,4), depth=29, dist2goal=6.3
iter=31, frontier=38, popped=4 (1,5), depth=29, dist2goal=6.1
pushed 5 (1,6)
iter=32, frontier=38, popped=5 (1,6), depth=30, dist2goal=6.0
pushed 6 (1,7)
pushed 26 (2,7)
iter=33, frontier=39, popped=26 (2,7), depth=31, dist2goal=5.1
pushed 27 (2,8)
pushed 47 (3,8)
iter=34, frontier=40, popped=47 (3,8), depth=32, dist2goal=4.5
pushed 48 (3,9)
pushed 66 (4,8)
pushed 67 (4,9)
iter=35, frontier=42, popped=67 (4,9), depth=33, dist2goal=4.2
pushed 68 (4,10)
iter=36, frontier=42, popped=68 (4,10), depth=34, dist2goal=5.0
pushed 49 (3,10)

pushed 50 (3,11)
pushed 51 (3,12)
pushed 52 (3,13)
iter=37, frontier=45, popped=52 (3,13), depth=35, dist2goal=8.1
pushed 32 (2,13)
pushed 31 (2,12)
iter=38, frontier=46, popped=31 (2,12), depth=36, dist2goal=7.8
pushed 30 (2,11)
pushed 11 (1,12)
pushed 10 (1,11)
iter=39, frontier=48, popped=10 (1,11), depth=37, dist2goal=7.8
pushed 9 (1,10)
iter=40, frontier=48, popped=9 (1,10), depth=38, dist2goal=7.2
pushed 8 (1,9)
pushed 29 (2,10)
iter=41, frontier=49, popped=29 (2,10), depth=39, dist2goal=6.4
pushed 28 (2,9)
iter=42, frontier=49, popped=28 (2,9), depth=40, dist2goal=5.8
pushed 7 (1,8)
iter=43, frontier=49, popped=7 (1,8), depth=41, dist2goal=6.3
iter=44, frontier=48, popped=8 (1,9), depth=39, dist2goal=6.7
iter=45, frontier=47, popped=11 (1,12), depth=37, dist2goal=8.5
pushed 12 (1,13)
iter=46, frontier=47, popped=12 (1,13), depth=38, dist2goal=9.2
pushed 13 (1,14)
pushed 33 (2,14)
iter=47, frontier=48, popped=33 (2,14), depth=39, dist2goal=9.4
pushed 34 (2,15)
pushed 53 (3,15)
iter=48, frontier=49, popped=53 (3,15), depth=40, dist2goal=9.8
pushed 54 (3,16)
pushed 69 (4,15)
pushed 70 (4,16)
iter=49, frontier=51, popped=70 (4,16), depth=41, dist2goal=10.4
pushed 71 (4,17)
pushed 82 (5,16)
pushed 83 (5,17)
iter=50, frontier=53, popped=83 (5,17), depth=42, dist2goal=11.2
pushed 84 (5,18)
pushed 95 (6,17)
pushed 96 (6,18)
iter=51, frontier=55, popped=96 (6,18), depth=43, dist2goal=12.0
pushed 97 (6,19)
pushed 110 (7,18)
pushed 111 (7,19)
iter=52, frontier=57, popped=111 (7,19), depth=44, dist2goal=13.0
pushed 112 (7,20)
pushed 128 (8,19)
pushed 129 (8,20)

iter=53, frontier=59, popped=129 (8,20), depth=45, dist2goal=14.0
pushed 144 (9,20)
iter=54, frontier=59, popped=144 (9,20), depth=46, dist2goal=14.1
pushed 143 (9,19)
pushed 149 (10,20)
iter=55, frontier=60, popped=149 (10,20), depth=47, dist2goal=14.3
pushed 148 (10,19)
pushed 154 (11,20)
iter=56, frontier=61, popped=154 (11,20), depth=48, dist2goal=14.6
pushed 153 (11,19)
pushed 159 (12,20)
iter=57, frontier=62, popped=159 (12,20), depth=49, dist2goal=14.9
pushed 158 (12,19)
pushed 172 (13,20)
iter=58, frontier=63, popped=172 (13,20), depth=50, dist2goal=15.2
pushed 171 (13,19)
pushed 184 (14,20)
iter=59, frontier=64, popped=184 (14,20), depth=51, dist2goal=15.7
pushed 183 (14,19)
pushed 197 (15,20)
iter=60, frontier=65, popped=197 (15,20), depth=52, dist2goal=16.1
pushed 196 (15,19)
pushed 210 (16,20)
iter=61, frontier=66, popped=210 (16,20), depth=53, dist2goal=16.6
pushed 209 (16,19)
pushed 222 (17,20)
iter=62, frontier=67, popped=222 (17,20), depth=54, dist2goal=17.2
pushed 221 (17,19)
pushed 236 (18,20)
iter=63, frontier=68, popped=236 (18,20), depth=55, dist2goal=17.8
pushed 235 (18,19)
pushed 254 (19,20)
iter=64, frontier=69, popped=254 (19,20), depth=56, dist2goal=18.4
pushed 253 (19,19)
pushed 274 (20,20)
iter=65, frontier=70, popped=274 (20,20), depth=57, dist2goal=19.1
pushed 273 (20,19)
iter=66, frontier=70, popped=273 (20,19), depth=58, dist2goal=18.4
pushed 272 (20,18)
pushed 252 (19,18)
iter=67, frontier=71, popped=252 (19,18), depth=59, dist2goal=17.0
pushed 251 (19,17)
pushed 234 (18,18)
pushed 233 (18,17)
iter=68, frontier=73, popped=233 (18,17), depth=60, dist2goal=15.6
pushed 232 (18,16)
pushed 219 (17,17)
pushed 218 (17,16)
iter=69, frontier=75, popped=218 (17,16), depth=61, dist2goal=14.1

pushed 217 (17,15)
pushed 206 (16,16)
pushed 205 (16,15)
iter=70, frontier=77, popped=205 (16,15), depth=62, dist2goal=12.7
pushed 204 (16,14)
pushed 192 (15,15)
pushed 191 (15,14)
iter=71, frontier=79, popped=191 (15,14), depth=63, dist2goal=11.3
pushed 190 (15,13)
iter=72, frontier=79, popped=190 (15,13), depth=64, dist2goal=10.6
pushed 189 (15,12)
iter=73, frontier=79, popped=189 (15,12), depth=65, dist2goal=10.0
iter=74, frontier=78, popped=192 (15,15), depth=63, dist2goal=12.0
pushed 193 (15,16)
pushed 179 (14,15)
iter=75, frontier=79, popped=179 (14,15), depth=64, dist2goal=11.4
pushed 180 (14,16)
pushed 170 (13,15)
iter=76, frontier=80, popped=170 (13,15), depth=65, dist2goal=10.8
iter=77, frontier=79, popped=180 (14,16), depth=65, dist2goal=12.2
pushed 181 (14,17)
pushed 194 (15,17)
iter=78, frontier=80, popped=194 (15,17), depth=66, dist2goal=13.6
pushed 195 (15,18)
pushed 207 (16,17)
pushed 208 (16,18)
iter=79, frontier=82, popped=208 (16,18), depth=67, dist2goal=15.0
pushed 220 (17,18)
iter=80, frontier=82, popped=220 (17,18), depth=68, dist2goal=15.6
iter=81, frontier=81, popped=207 (16,17), depth=67, dist2goal=14.2
iter=82, frontier=80, popped=195 (15,18), depth=67, dist2goal=14.4
pushed 182 (14,18)
iter=83, frontier=80, popped=182 (14,18), depth=68, dist2goal=13.9
iter=84, frontier=79, popped=181 (14,17), depth=66, dist2goal=13.0
iter=85, frontier=78, popped=193 (15,16), depth=64, dist2goal=12.8
iter=86, frontier=77, popped=204 (16,14), depth=63, dist2goal=12.0
pushed 216 (17,13)
pushed 215 (17,12)
pushed 231 (18,15)
iter=87, frontier=79, popped=231 (18,15), depth=64, dist2goal=14.2
pushed 249 (19,15)
pushed 250 (19,16)
pushed 268 (20,14)
iter=88, frontier=81, popped=268 (20,14), depth=65, dist2goal=15.3
pushed 269 (20,15)
pushed 267 (20,13)
pushed 248 (19,13)
iter=89, frontier=83, popped=248 (19,13), depth=66, dist2goal=13.9
pushed 247 (19,12)

iter=90, frontier=83, popped=247 (19,12), depth=67, dist2goal=13.4
pushed 246 (19,11)
pushed 266 (20,12)
iter=91, frontier=84, popped=266 (20,12), depth=68, dist2goal=14.3
pushed 265 (20,11)
iter=92, frontier=84, popped=265 (20,11), depth=69, dist2goal=13.9
pushed 264 (20,10)
pushed 245 (19,10)
iter=93, frontier=85, popped=245 (19,10), depth=70, dist2goal=12.6
pushed 263 (20,9)
iter=94, frontier=85, popped=263 (20,9), depth=71, dist2goal=13.3
pushed 262 (20,8)
pushed 244 (19,8)
iter=95, frontier=86, popped=244 (19,8), depth=72, dist2goal=12.2
pushed 243 (19,7)
iter=96, frontier=86, popped=243 (19,7), depth=73, dist2goal=12.0
pushed 261 (20,7)
iter=97, frontier=86, popped=261 (20,7), depth=74, dist2goal=13.0
pushed 260 (20,6)
iter=98, frontier=86, popped=260 (20,6), depth=75, dist2goal=13.0
pushed 259 (20,5)
iter=99, frontier=86, popped=259 (20,5), depth=76, dist2goal=13.0
pushed 258 (20,4)
pushed 240 (19,4)
iter=100, frontier=87, popped=240 (19,4), depth=77, dist2goal=12.2
pushed 239 (19,3)
iter=101, frontier=87, popped=239 (19,3), depth=78, dist2goal=12.4
pushed 238 (19,2)
pushed 257 (20,3)
pushed 224 (18,2)
iter=102, frontier=89, popped=224 (18,2), depth=79, dist2goal=11.7
pushed 223 (18,1)
pushed 211 (17,1)
iter=103, frontier=90, popped=211 (17,1), depth=80, dist2goal=11.2
iter=104, frontier=89, popped=223 (18,1), depth=80, dist2goal=12.1
pushed 237 (19,1)
iter=105, frontier=89, popped=237 (19,1), depth=81, dist2goal=13.0
pushed 255 (20,1)
pushed 256 (20,2)
iter=106, frontier=90, popped=256 (20,2), depth=82, dist2goal=13.6
iter=107, frontier=89, popped=255 (20,1), depth=82, dist2goal=13.9
iter=108, frontier=88, popped=257 (20,3), depth=79, dist2goal=13.3
iter=109, frontier=87, popped=238 (19,2), depth=79, dist2goal=12.6
iter=110, frontier=86, popped=258 (20,4), depth=77, dist2goal=13.2
iter=111, frontier=85, popped=262 (20,8), depth=72, dist2goal=13.2
iter=112, frontier=84, popped=264 (20,10), depth=70, dist2goal=13.6
iter=113, frontier=83, popped=246 (19,11), depth=68, dist2goal=13.0
iter=114, frontier=82, popped=267 (20,13), depth=66, dist2goal=14.8
iter=115, frontier=81, popped=269 (20,15), depth=66, dist2goal=15.8

pushed 270 (20,16)
iter=116, frontier=81, popped=270 (20,16), depth=67, dist2goal=16.4
pushed 271 (20,17)
iter=117, frontier=81, popped=271 (20,17), depth=68, dist2goal=17.0
iter=118, frontier=80, popped=250 (19,16), depth=65, dist2goal=15.6
iter=119, frontier=79, popped=249 (19,15), depth=65, dist2goal=15.0
iter=120, frontier=78, popped=215 (17,12), depth=64, dist2goal=11.7
iter=121, frontier=77, popped=216 (17,13), depth=64, dist2goal=12.2
iter=122, frontier=76, popped=206 (16,16), depth=62, dist2goal=13.5
iter=123, frontier=75, popped=217 (17,15), depth=62, dist2goal=13.5
iter=124, frontier=74, popped=219 (17,17), depth=61, dist2goal=14.9
iter=125, frontier=73, popped=232 (18,16), depth=61, dist2goal=14.9
iter=126, frontier=72, popped=234 (18,18), depth=60, dist2goal=16.3
iter=127, frontier=71, popped=251 (19,17), depth=60, dist2goal=16.3
iter=128, frontier=70, popped=272 (20,18), depth=59, dist2goal=17.7
iter=129, frontier=69, popped=253 (19,19), depth=57, dist2goal=17.7
iter=130, frontier=68, popped=235 (18,19), depth=56, dist2goal=17.0
iter=131, frontier=67, popped=221 (17,19), depth=55, dist2goal=16.4
iter=132, frontier=66, popped=209 (16,19), depth=54, dist2goal=15.8
iter=133, frontier=65, popped=196 (15,19), depth=53, dist2goal=15.3
iter=134, frontier=64, popped=183 (14,19), depth=52, dist2goal=14.8
iter=135, frontier=63, popped=171 (13,19), depth=51, dist2goal=14.3
iter=136, frontier=62, popped=158 (12,19), depth=50, dist2goal=13.9
iter=137, frontier=61, popped=153 (11,19), depth=49, dist2goal=13.6
pushed 127 (8,18)
iter=138, frontier=61, popped=127 (8,18), depth=50, dist2goal=12.0
pushed 126 (8,17)
pushed 109 (7,17)
iter=139, frontier=62, popped=109 (7,17), depth=51, dist2goal=11.0
pushed 108 (7,16)
pushed 94 (6,16)
iter=140, frontier=63, popped=94 (6,16), depth=52, dist2goal=10.0
pushed 93 (6,15)
pushed 81 (5,15)
iter=141, frontier=64, popped=81 (5,15), depth=53, dist2goal=9.2
pushed 80 (5,14)
iter=142, frontier=64, popped=80 (5,14), depth=54, dist2goal=8.2
pushed 79 (5,13)
pushed 92 (6,14)
iter=143, frontier=65, popped=92 (6,14), depth=55, dist2goal=8.1
pushed 91 (6,13)
pushed 107 (7,15)
iter=144, frontier=66, popped=107 (7,15), depth=56, dist2goal=9.0
pushed 124 (8,15)
pushed 125 (8,16)
iter=145, frontier=67, popped=125 (8,16), depth=57, dist2goal=10.0
iter=146, frontier=66, popped=124 (8,15), depth=57, dist2goal=9.1
pushed 142 (9,15)
iter=147, frontier=66, popped=142 (9,15), depth=58, dist2goal=9.2

pushed 141 (9,14)
iter=148, frontier=66, popped=141 (9,14), depth=59, dist2goal=8.2
pushed 140 (9,13)
iter=149, frontier=66, popped=140 (9,13), depth=60, dist2goal=7.3
pushed 139 (9,12)
pushed 123 (8,13)
pushed 122 (8,12)
iter=150, frontier=68, popped=122 (8,12), depth=61, dist2goal=6.1
pushed 121 (8,11)
pushed 106 (7,10)
iter=151, frontier=69, popped=106 (7,10), depth=62, dist2goal=4.0
pushed 105 (7,9)
pushed 120 (8,10)
iter=152, frontier=70, popped=120 (8,10), depth=63, dist2goal=4.1
pushed 119 (8,9)
pushed 137 (9,10)
pushed 138 (9,11)
iter=153, frontier=72, popped=138 (9,11), depth=64, dist2goal=5.4
iter=154, frontier=71, popped=137 (9,10), depth=64, dist2goal=4.5
pushed 136 (9,9)
iter=155, frontier=71, popped=136 (9,9), depth=65, dist2goal=3.6
pushed 135 (9,8)
pushed 118 (8,8)
iter=156, frontier=72, popped=118 (8,8), depth=66, dist2goal=2.2
pushed 117 (8,7)
pushed 104 (7,8)
pushed 103 (7,7)
iter=157, frontier=74, popped=103 (7,7), depth=67, dist2goal=1.0
pushed 102 (7,6)

=====
Solution path:

13 6
14 7
16 8
17 8
18 5
17 3
16 2
15 1
14 1
13 1
12 1
11 1
10 1
9 1
8 1
7 1
6 1
5 1

4 1
3 1
2 1
1 1
1 2
2 3
3 4
4 5
4 6
3 6
2 5
1 5
1 6
2 7
3 8
4 9
4 10
3 13
2 12
1 12
1 13
2 14
3 15
4 16
5 17
6 18
7 19
8 20
9 20
10 20
11 20
11 19
8 18
7 17
6 16
5 15
5 14
6 14
7 15
8 15
9 15
9 14
9 13
8 12
7 10
8 10
9 10
9 9
8 8

7 7

7 6

Search algorithm = DFS

Total iterations = 157

Max frontier size = 91

Vertices visited = 231/275

Path length = 68

===== << END >> =====

Vertices=275, edges=641

Start=(13,6), goal=(7,6), vertices: 163 and 102

iter=1, frontier=0, popped=163 (13,6), depth=0, dist2goal=6.0

pushed 164 (13,7)

pushed 176 (14,6)

pushed 177 (14,7)

iter=2, frontier=2, popped=164 (13,7), depth=1, dist2goal=6.1

pushed 165 (13,8)

pushed 178 (14,8)

iter=3, frontier=3, popped=165 (13,8), depth=2, dist2goal=6.3

iter=4, frontier=2, popped=176 (14,6), depth=1, dist2goal=7.0

iter=5, frontier=1, popped=177 (14,7), depth=1, dist2goal=7.1

pushed 188 (15,8)

pushed 201 (16,8)

iter=6, frontier=2, popped=178 (14,8), depth=2, dist2goal=7.3

iter=7, frontier=1, popped=188 (15,8), depth=2, dist2goal=8.2

pushed 202 (16,9)

pushed 203 (16,10)

iter=8, frontier=2, popped=201 (16,8), depth=2, dist2goal=9.2

pushed 214 (17,8)

iter=9, frontier=2, popped=202 (16,9), depth=3, dist2goal=9.5

iter=10, frontier=1, popped=203 (16,10), depth=3, dist2goal=9.8

iter=11, frontier=0, popped=214 (17,8), depth=3, dist2goal=10.2

pushed 230 (18,8)

pushed 229 (18,7)

pushed 228 (18,6)

pushed 227 (18,5)

iter=12, frontier=3, popped=228 (18,6), depth=4, dist2goal=11.0

pushed 242 (19,6)

pushed 243 (19,7)

iter=13, frontier=4, popped=227 (18,5), depth=4, dist2goal=11.0

pushed 226 (18,4)

pushed 241 (19,5)

pushed 213 (17,3)

iter=14, frontier=6, popped=213 (17,3), depth=5, dist2goal=10.4

pushed 212 (17,2)

pushed 200 (16,3)

pushed 225 (18,3)

pushed 199 (16,2)

iter=15, frontier=9, popped=200 (16,3), depth=6, dist2goal=9.5

pushed 187 (15,3)
pushed 186 (15,2)
iter=16, frontier=10, popped=187 (15,3), depth=7, dist2goal=8.5
pushed 175 (14,3)
pushed 174 (14,2)
iter=17, frontier=11, popped=175 (14,3), depth=8, dist2goal=7.6
pushed 162 (13,3)
pushed 161 (13,2)
iter=18, frontier=12, popped=162 (13,3), depth=9, dist2goal=6.7
pushed 157 (12,3)
pushed 156 (12,2)
iter=19, frontier=13, popped=157 (12,3), depth=10, dist2goal=5.8
pushed 152 (11,3)
pushed 151 (11,2)
iter=20, frontier=14, popped=152 (11,3), depth=11, dist2goal=5.0
pushed 147 (10,3)
pushed 146 (10,2)
iter=21, frontier=15, popped=147 (10,3), depth=12, dist2goal=4.2
pushed 132 (9,3)
pushed 131 (9,2)
iter=22, frontier=16, popped=132 (9,3), depth=13, dist2goal=3.6
pushed 115 (8,3)
pushed 114 (8,2)
iter=23, frontier=17, popped=115 (8,3), depth=14, dist2goal=3.2
pushed 101 (7,3)
pushed 100 (7,2)
iter=24, frontier=18, popped=101 (7,3), depth=15, dist2goal=3.0
pushed 89 (6,3)
pushed 88 (6,2)
iter=25, frontier=19, popped=89 (6,3), depth=16, dist2goal=3.2
pushed 77 (5,3)
pushed 76 (5,2)
iter=26, frontier=20, popped=77 (5,3), depth=17, dist2goal=3.6
pushed 61 (4,3)
pushed 60 (4,2)
iter=27, frontier=21, popped=100 (7,2), depth=15, dist2goal=4.0
pushed 99 (7,1)
pushed 87 (6,1)
iter=28, frontier=22, popped=88 (6,2), depth=16, dist2goal=4.1
pushed 75 (5,1)
iter=29, frontier=22, popped=114 (8,2), depth=14, dist2goal=4.1
pushed 113 (8,1)
iter=30, frontier=22, popped=61 (4,3), depth=18, dist2goal=4.2
pushed 62 (4,4)
pushed 42 (3,3)
pushed 41 (3,2)
iter=31, frontier=24, popped=62 (4,4), depth=19, dist2goal=3.6
pushed 63 (4,5)
pushed 43 (3,4)

iter=32, frontier=25, popped=63 (4,5), depth=20, dist2goal=3.2
pushed 64 (4,6)
pushed 44 (3,5)
iter=33, frontier=26, popped=64 (4,6), depth=21, dist2goal=3.0
pushed 65 (4,7)
pushed 45 (3,6)
iter=34, frontier=27, popped=65 (4,7), depth=22, dist2goal=3.2
pushed 66 (4,8)
pushed 46 (3,7)
iter=35, frontier=28, popped=66 (4,8), depth=23, dist2goal=3.6
pushed 67 (4,9)
pushed 78 (5,8)
pushed 47 (3,8)
iter=36, frontier=30, popped=78 (5,8), depth=24, dist2goal=2.8
pushed 90 (6,8)
iter=37, frontier=30, popped=90 (6,8), depth=25, dist2goal=2.2
pushed 104 (7,8)
iter=38, frontier=30, popped=104 (7,8), depth=26, dist2goal=2.0
pushed 103 (7,7)
pushed 105 (7,9)
pushed 118 (8,8)
pushed 119 (8,9)
iter=39, frontier=33, popped=103 (7,7), depth=27, dist2goal=1.0
pushed 102 (7,6)
pushed 117 (8,7)

=====

Solution path:

13 6
14 7
16 8
17 8
18 5
17 3
16 3
15 3
14 3
13 3
12 3
11 3
10 3
9 3
8 3
7 3
6 3
5 3
4 3
4 4
4 5
4 6

4 7
4 8
5 8
6 8
7 8
7 7
7 6

Search algorithm = GBFS

Total iterations = 39

Max frontier size = 35

Vertices visited = 73/275

Path length = 28

===== << END >> =====

Vertices=275, edges=641

Start=(13,6), goal=(7,6), vertices: 163 and 102

iter=1, frontier=0, popped=163 (13,6), depth=0, dist2goal=6.0

pushed 164 (13,7)

pushed 176 (14,6)

pushed 177 (14,7)

iter=2, frontier=2, popped=164 (13,7), depth=1, dist2goal=6.1

pushed 165 (13,8)

pushed 178 (14,8)

iter=3, frontier=3, popped=176 (14,6), depth=1, dist2goal=7.0

iter=4, frontier=2, popped=165 (13,8), depth=2, dist2goal=6.3

iter=5, frontier=1, popped=177 (14,7), depth=1, dist2goal=7.1

pushed 188 (15,8)

pushed 201 (16,8)

iter=6, frontier=2, popped=178 (14,8), depth=2, dist2goal=7.3

iter=7, frontier=1, popped=188 (15,8), depth=2, dist2goal=8.2

pushed 202 (16,9)

pushed 203 (16,10)

iter=8, frontier=2, popped=201 (16,8), depth=2, dist2goal=9.2

pushed 214 (17,8)

iter=9, frontier=2, popped=202 (16,9), depth=3, dist2goal=9.5

iter=10, frontier=1, popped=214 (17,8), depth=3, dist2goal=10.2

pushed 230 (18,8)

pushed 229 (18,7)

pushed 228 (18,6)

pushed 227 (18,5)

iter=11, frontier=4, popped=203 (16,10), depth=3, dist2goal=9.8

iter=12, frontier=3, popped=228 (18,6), depth=4, dist2goal=11.0

pushed 242 (19,6)

pushed 243 (19,7)

iter=13, frontier=4, popped=227 (18,5), depth=4, dist2goal=11.0

pushed 226 (18,4)

pushed 241 (19,5)

pushed 213 (17,3)

iter=14, frontier=6, popped=213 (17,3), depth=5, dist2goal=10.4

pushed 212 (17,2)
pushed 200 (16,3)
pushed 225 (18,3)
pushed 199 (16,2)
iter=15, frontier=9, popped=200 (16,3), depth=6, dist2goal=9.5
pushed 187 (15,3)
pushed 186 (15,2)
iter=16, frontier=10, popped=187 (15,3), depth=7, dist2goal=8.5
pushed 175 (14,3)
pushed 174 (14,2)
iter=17, frontier=11, popped=175 (14,3), depth=8, dist2goal=7.6
pushed 162 (13,3)
pushed 161 (13,2)
iter=18, frontier=12, popped=162 (13,3), depth=9, dist2goal=6.7
pushed 157 (12,3)
pushed 156 (12,2)
iter=19, frontier=13, popped=157 (12,3), depth=10, dist2goal=5.8
pushed 152 (11,3)
pushed 151 (11,2)
iter=20, frontier=14, popped=152 (11,3), depth=11, dist2goal=5.0
pushed 147 (10,3)
pushed 146 (10,2)
iter=21, frontier=15, popped=147 (10,3), depth=12, dist2goal=4.2
pushed 132 (9,3)
pushed 131 (9,2)
iter=22, frontier=16, popped=132 (9,3), depth=13, dist2goal=3.6
pushed 115 (8,3)
pushed 114 (8,2)
iter=23, frontier=17, popped=115 (8,3), depth=14, dist2goal=3.2
pushed 101 (7,3)
pushed 100 (7,2)
iter=24, frontier=18, popped=101 (7,3), depth=15, dist2goal=3.0
pushed 89 (6,3)
pushed 88 (6,2)
iter=25, frontier=19, popped=146 (10,2), depth=12, dist2goal=5.0
pushed 145 (10,1)
pushed 130 (9,1)
iter=26, frontier=20, popped=131 (9,2), depth=13, dist2goal=4.5
pushed 113 (8,1)
iter=27, frontier=20, popped=151 (11,2), depth=11, dist2goal=5.7
pushed 150 (11,1)
iter=28, frontier=20, popped=156 (12,2), depth=10, dist2goal=6.4
pushed 155 (12,1)
iter=29, frontier=20, popped=114 (8,2), depth=14, dist2goal=4.1
pushed 99 (7,1)
iter=30, frontier=20, popped=89 (6,3), depth=16, dist2goal=3.2
pushed 77 (5,3)
pushed 76 (5,2)
iter=31, frontier=21, popped=100 (7,2), depth=15, dist2goal=4.0

pushed 87 (6,1)
iter=32, frontier=21, popped=161 (13,2), depth=9, dist2goal=7.2
pushed 160 (13,1)
iter=33, frontier=21, popped=145 (10,1), depth=13, dist2goal=5.8
iter=34, frontier=20, popped=130 (9,1), depth=13, dist2goal=5.4
iter=35, frontier=19, popped=150 (11,1), depth=12, dist2goal=6.4
iter=36, frontier=18, popped=77 (5,3), depth=17, dist2goal=3.6
pushed 61 (4,3)
pushed 60 (4,2)
iter=37, frontier=19, popped=155 (12,1), depth=11, dist2goal=7.1
iter=38, frontier=18, popped=113 (8,1), depth=14, dist2goal=5.1
iter=39, frontier=17, popped=88 (6,2), depth=16, dist2goal=4.1
pushed 75 (5,1)
iter=40, frontier=17, popped=174 (14,2), depth=8, dist2goal=8.1
pushed 173 (14,1)
iter=41, frontier=17, popped=160 (13,1), depth=10, dist2goal=7.8
iter=42, frontier=16, popped=99 (7,1), depth=15, dist2goal=5.0
iter=43, frontier=15, popped=76 (5,2), depth=17, dist2goal=4.5
pushed 59 (4,1)
iter=44, frontier=15, popped=186 (15,2), depth=7, dist2goal=8.9
pushed 185 (15,1)
iter=45, frontier=15, popped=87 (6,1), depth=16, dist2goal=5.1
iter=46, frontier=14, popped=173 (14,1), depth=9, dist2goal=8.6
iter=47, frontier=13, popped=61 (4,3), depth=18, dist2goal=4.2
pushed 62 (4,4)
pushed 42 (3,3)
pushed 41 (3,2)
iter=48, frontier=15, popped=62 (4,4), depth=19, dist2goal=3.6
pushed 63 (4,5)
pushed 43 (3,4)
iter=49, frontier=16, popped=63 (4,5), depth=20, dist2goal=3.2
pushed 64 (4,6)
pushed 44 (3,5)
iter=50, frontier=17, popped=64 (4,6), depth=21, dist2goal=3.0
pushed 65 (4,7)
pushed 45 (3,6)
iter=51, frontier=18, popped=65 (4,7), depth=22, dist2goal=3.2
pushed 66 (4,8)
pushed 46 (3,7)
iter=52, frontier=19, popped=66 (4,8), depth=23, dist2goal=3.6
pushed 67 (4,9)
pushed 78 (5,8)
pushed 47 (3,8)
iter=53, frontier=21, popped=78 (5,8), depth=24, dist2goal=2.8
pushed 90 (6,8)
iter=54, frontier=21, popped=90 (6,8), depth=25, dist2goal=2.2
pushed 104 (7,8)
iter=55, frontier=21, popped=104 (7,8), depth=26, dist2goal=2.0
pushed 103 (7,7)

pushed 105 (7,9)
pushed 118 (8,8)
pushed 119 (8,9)
iter=56, frontier=24, popped=103 (7,7), depth=27, dist2goal=1.0
pushed 102 (7,6)
pushed 117 (8,7)

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Solution path:

13 6
14 7
16 8
17 8
18 5
17 3
16 3
15 3
14 3
13 3
12 3
11 3
10 3
9 3
8 3
7 3
6 3
5 3
4 3
4 4
4 5
4 6
4 7
4 8
5 8
6 8
7 8
7 7
7 6

Search algorithm = ASTAR

Total iterations = 56

Max frontier size = 26

Vertices visited = 81/275

Path length = 28

===== << END >> =====