

7921 Anticlockwise Motion

You have come up with an idea for a board game. The game is played on a board that is made up of 32001×32001 numbered squares. The centre square contains the number 1 and the other numbers are arranged in an anticlockwise spiral outwards (first moving downwards, then to the right, then upwards, then to the left, then downwards again, and so on). Figure 1 displays the 5×5 squares in the middle of the board and Figure 2 displays the 21×21 squares in the middle of the board for further clarification. When playing the game, players will only be able to move up, left, down and right. To help work out the rules for the game, you would like to know the shortest distance between two squares on the board using only these moves.

21	20	19	18	17
22	7	6	5	16
23	8	1	4	15
24	9	2	3	14
25	10	11	12	13

Fig.1: The middle 25 squares.

421	420	419	418	417	416	415	414	413	412	411	410	409	408	407	406	405	404	403	402	401
422	343	342	341	340	339	338	337	336	335	334	333	332	331	330	329	328	327	326	325	400
423	344	273	272	271	270	269	268	267	266	265	264	263	262	261	260	259	258	257	324	399
424	345	274	211	210	209	208	207	206	205	204	203	202	201	200	199	198	197	256	323	398
425	346	275	212	157	156	155	154	153	152	151	150	149	148	147	146	145	196	255	322	397
426	347	276	213	158	111	110	109	108	107	106	105	104	103	102	101	144	195	254	321	396
427	348	277	214	159	112	73	72	71	70	69	68	67	66	65	100	143	194	253	320	395
428	349	278	215	160	113	74	43	42	41	40	39	38	37	64	99	142	193	252	319	394
429	350	279	216	161	114	75	44	21	20	19	18	17	36	63	98	141	192	251	318	393
430	351	280	217	162	115	76	45	22	7	6	5	16	35	62	97	140	191	250	317	392
431	352	281	218	163	116	77	46	23	8	1	4	15	34	61	96	139	190	249	316	391
432	353	282	219	164	117	78	47	24	9	2	3	14	33	60	95	138	189	248	315	390
433	354	283	220	165	118	79	48	25	10	11	12	13	32	59	94	137	188	247	314	389
434	355	284	221	166	119	80	49	26	27	28	29	30	31	58	93	136	187	246	313	388
435	356	285	222	167	120	81	50	51	52	53	54	55	56	57	92	135	186	245	312	387
436	357	286	223	168	121	82	83	84	85	86	87	88	89	90	91	134	185	244	311	386
437	358	287	224	169	122	123	124	125	126	127	128	129	130	131	132	133	184	243	310	385
438	359	288	225	170	171	172	173	174	175	176	177	178	179	180	181	182	183	242	309	384
439	360	289	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	308	383
440	361	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	382
441	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381

Fig.2: The middle 441 squares.

Input

The input file contains several test cases, each of them as described below.

The input consists of a single line containing two integers a ($1 \leq a \leq 10^9$), which is the starting square, and b ($1 \leq b \leq 10^9$), which is the ending square.

Output

For each test case, display the shortest distance between a and b , on a line by itself.

Sample Input

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12 2
16 24
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Sample Output

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2
6
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