

# Math 201 - Discrete Mathematics and the Theory of Numbers

## Spring Semester 2019

Section 001: MWF 2:45 – 3:35 pm (233 Dumbach Hall)

100	99	98	97	96	95	94	93	92	91	90
101	64	63	62	61	60	59	58	57	56	89
102	65	36	35	34	33	32	31	30	55	88
103	66	37	16	15	14	13	12	29	54	87
104	67	38	17	4	3	2	11	28	53	86
105	68	39	18	5	0	1	10	27	52	85
106	69	40	19	6	7	8	9	26	51	84
107	70	41	20	21	22	23	24	25	50	83
108	71	42	43	44	45	46	47	48	49	82
109	72	73	74	75	76	77	78	79	80	81
110	111	112	113	114	115	116	117	118	119	120

*the prime spiral (aka the Ulam spiral)*

Notice that the blue numbers (all primes but for 1) tend to line up along diagonal lines. In a passage from his 1956 novel *The City and the Stars*, author [Arthur C. Clarke](#) describes the prime spiral seven years before Ulam discovered it. Clarke did not notice the pattern revealed by the prime spiral because he never actually experimented.

- [Ground Rules](#)
- [Piazza](#)
- [Homework & Reading Assignments](#)
- [Questions for Class Discussion](#)
- [Useful References](#)
- [History of Number Theory](#)
- [Quiz Solutions \(Q1, Q2, Q3, Q4, Q5, Q6\)](#)
- [Practice Tests \(T1, T2, T3\)](#)
- [Test Solutions \(T1, T2, T3\)](#)
- [Essay Topics \(extra credit\)](#)

On the other hand, it is impossible for a cube to be written as a sum of two cubes or a fourth power to be written as a sum of two fourth powers or, in general for any number which is a power greater than the second to be written as a sum of two like powers. For this I have discovered a truly wonderful proof, but the margin is too small to contain it.

– P. Fermat



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