Prime numbers.
Euclid's algorithm

A **prime number** - it is a natural number greater than one that has exactly two positive divisors: 1 and itself. The study deals with the properties of prime numbers theory of numbers. A prime number is an integer $p > 1$ such that it cannot be written as $p = ab$ with $a, b > 1$.

Example: 7 is ***prime*** because the only numbers that will divide into it evenly are 1 and 7.

	2	3	5	7	11	13	17	19	23
29	31	37	41	43	47	53	59	61	67
71	73	79	83	89	97	101	103	107	109
113	127	131	137	139	149	151	157	163	167
173	179	181	191	193	197	199	211	223	227
229	233	239	241	251	257	263	269	271	277
281	283	293	307	311	313	317	331	337	347
349	353	359	367	373	379	383	389	397	401
409	419	421	431	433	439	443	449	457	461
463	467	479	487	491	499	503	509	521	523
541	547	557	563	569	571	577	587	593	599
601	607	613	617	619	631	641	643	647	653
659	661	673	677	683	691	701	709	719	727
733	739	743	751	757	761	769	773	787	797
809	811	821	823	827	829	839	853	857	859
863	877	881	883	887	907	911	919	929	937
941	947	953	967	971	977	983	991	997	

All other numbers not equal to unity, are called composite. Thus, all integers except one, are divided into simple and complex. The study deals with the properties of prime numbers theory of numbers. The theory of rings primes correspond to the irreducible elements.

Euclid's algorithm - an efficient algorithm for finding the greatest common divisor of two integers (or a common measure of two segments). The algorithm is named for the Greek mathematician Euclid, who first described it in the VII and X book "Principia." In the simplest case, Euclid's algorithm is applied to a pair of positive integers, and generates a new pair consisting of a smaller number, and the difference between larger and smaller integer. The process is repeated until the numbers become equal. The obtained number is the greatest common divisor of the original pair.

Euclidean Algorithm - Given $a, b \in Z$, not both 0, find (a, b)

- Step 1: If $a, b < 0$, replace with negative
- Step 2: If $a > b$, switch a and b
- Step 3: If $a = 0$, return b
- Step 4: Since $a > 0$, write $b = aq + r$ with $0 \leq r < a$. Replace (a, b) with (r, a) and go to Step 3

In principle, Euclid's algorithm will do, and whole numbers, such as the length of the segment. Then it allows you to find the greatest common measure of two segments, that is, the largest of the intervals entirely fit into both data if such a measure exists: it exists, if the segments are commensurable, ie the ratio of their lengths is a rational number.