CONGRUENCE CONDITIONS ON PRIMES

There are 46 primes below 200:

$$2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97, 101,$$
$$103, 107, 109, 113, 127, 131, 137, 139, 149, 151, 157, 163, 167, 173, 179, 181, 191, 193, 197, 199.$$

Collecting these primes together according to their values modulo $3, 4, 5, 8,$ and 12, we get the lists below. For example, 7, 13, and 19 are in the row marked for 1 mod 3 since they are congruent to 1 mod 3.

$a \bmod m$	$p \equiv a \bmod m, \ p < 200$
1 mod 3	7, 13, 19, 31, 37, 43, 61, 67, 73, 79, 97, 103, 109, 127, 139, 151, 157, 163, 181, 193, 199
2 mod 3	2, 5, 11, 17, 23, 29, 41, 47, 53, 59, 71, 83, 89, 101, 107, 113, 131, 137, 149, 167, 173, 179, 191, 197
1 mod 4	5, 13, 17, 29, 37, 41, 53, 61, 73, 89, 97, 101, 109, 113, 137, 149, 157, 173, 181, 193, 197
3 mod 4	3, 7, 11, 19, 23, 31, 43, 47, 59, 67, 71, 79, 83, 103, 107, 127, 131, 139, 151, 163, 167, 179, 191, 199
1 mod 5	11, 31, 41, 61, 71, 101, 131, 151, 181, 191
2 mod 5	2, 7, 17, 37, 47, 67, 97, 107, 127, 137, 157, 167, 197
3 mod 5	3, 13, 23, 43, 53, 73, 83, 103, 113, 163, 173, 193
4 mod 5	19, 29, 59, 79, 89, 109, 139, 149, 179, 199
1 mod 8	17, 41, 73, 89, 97, 113, 137, 193
3 mod 8	3, 11, 19, 43, 59, 67, 83, 107, 131, 139, 163, 179
5 mod 8	5, 13, 29, 37, 53, 61, 101, 109, 149, 157, 173, 181, 197
7 mod 8	7, 23, 31, 47, 71, 79, 103, 127, 151, 167, 191, 199
1 mod 12	13, 37, 61, 73, 97, 109, 157, 181, 193
5 mod 12	5, 17, 29, 41, 53, 89, 101, 113, 137, 149, 173, 197
7 mod 12	7, 19, 31, 43, 67, 79, 103, 127, 139, 151, 163, 199
11 mod 12	11, 23, 47, 59, 71, 83, 107, 131, 167, 179, 191