Sieve of Erathosthenes

Suppose we have to find all the prime numbers from 1 to 20.

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

We start from 2 and mark all the numbers which are greater than 22 and are divisible by 2.

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

Now we move on to the next unmarked digit that is 3.

We mark all the numbers which are greater than 32 and are divisible by 3.

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

Now we move on to the next unmarked digit i.e, 5. Since the square of 5 i.e, 25 > 20 we end the process.

All the unmarked digits are the prime numbers between 1 to 20.