Operators

	x % y ?
+	
-	
/	7 % 2 = 1
*	19 % 3
%	
=	21 % 3

$x \% y$ $\quad x \geq y$ $\quad 0 - y-1$

$x \% 3$ $\quad 0, 1, 2$

$4 \% 3 = 1$

$5 \% 3 = 2$

$6 \% 3 = 0$

$7 \% 3 = 1$

$8 \% 3 = 2$

$x \% y$ $\quad x < y$

$3 \% 7 = 3$

$6 \% 8 = 6$

x odd or even

$x \% 2$ → 1, 0

$7 \% 3 \quad 1$

$8 \% 3 \quad 2$

$9 \% 3 \quad 0$

$10 \% 3 \quad 1$

$11 \% 3$

$3 \% 7$

↳ $3 = 7 \times 0 + 3$

y

x 10115 (6)

100/10 = 10

1000/10 = 100

101156/10 = 10115

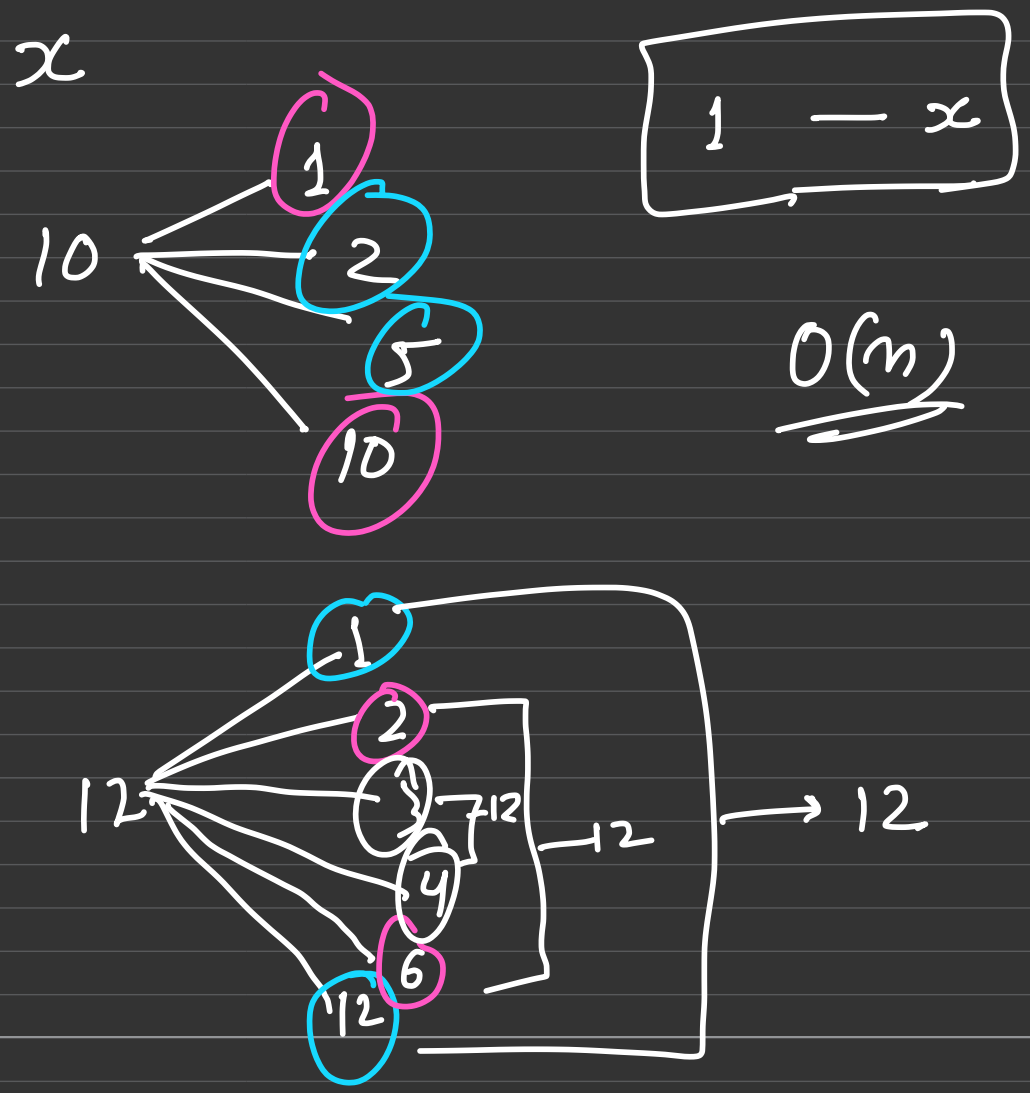
101156%10 ?

```
int count = 0;
int digSum = 0;
while ( x != 0)
{ digSum += x % 10 :
    x = x / 10;

    Count ++;

}
```

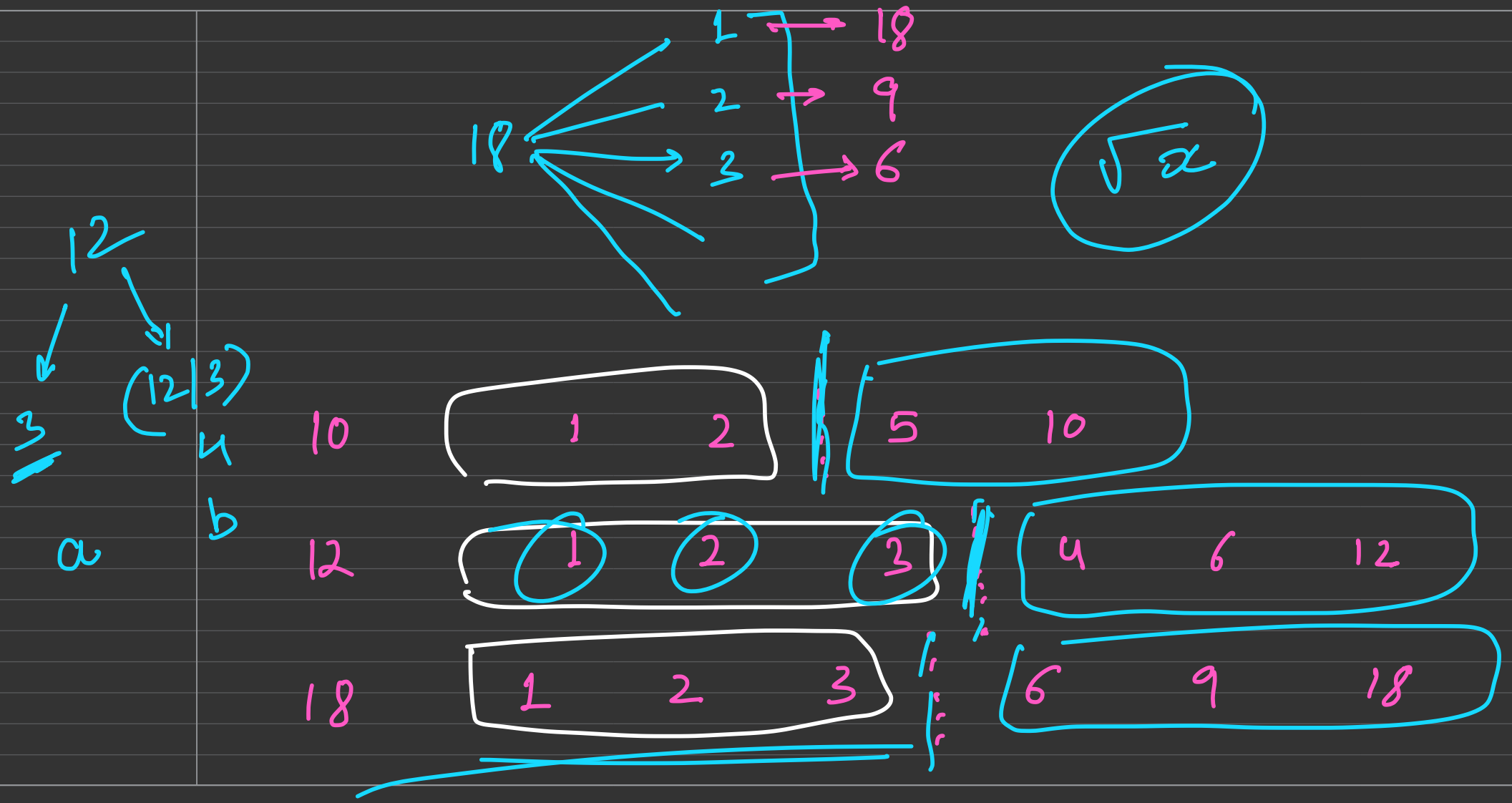
$\boxed{11234}$

1 4

x	$x \% 10$
11234	4
1123	3
112	2
11	1
1	1
0	


x
10
1
2
5
10
1 — x
O(n)
12
1
2
3
4
6
12
12
12
12

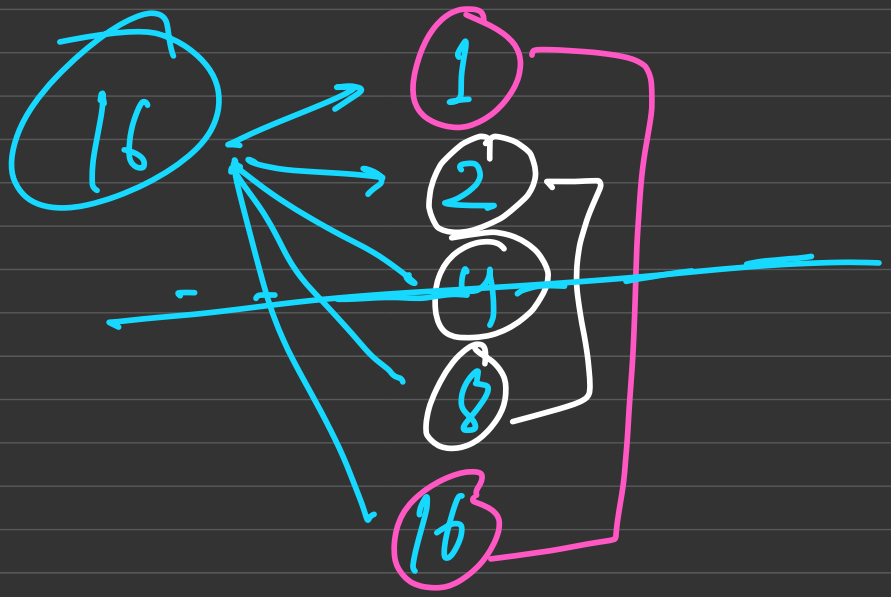
```
for(i=1; i<=n; i++)
{     if(n%i==0)

}
```



18
1 → 18
2 → 9
3 → 6
$\sqrt{x}$
12
3
(12|3)
4
a
b
10
1 2
5 10
12
1 2 3
4 6 12
18
1 2 3
6 9 18

O(m)

$O\left(\frac{m}{2}\right) \rightarrow O(m)$



```
for ( i = 1 ; i * i <= n ; i++)
```

$i <= \sqrt{n}$

$i \times i <= n$

10000

$\sqrt{10000} = 100$

$\frac{10000}{2} = 5000$

16

i , n / i

√ 4

16 / 4

4

x = 1468

y = 8641

	x	y	dig
	1468	0	
1	146	8	8
2	14	86	6
3	1	864	4
4	0	8641	1

```
int y = 0
while (x != 0)
{
    int dig = x % 10;
    x = x / 10;
    y = y * 10 + dig;
}
```

wow

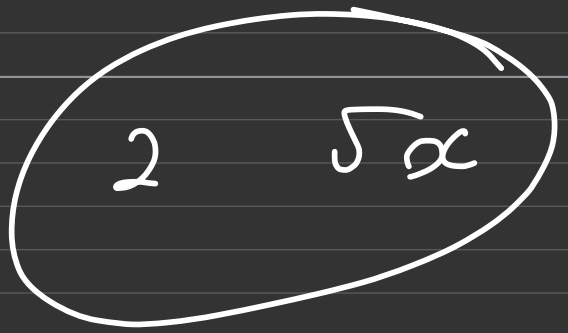
racecar

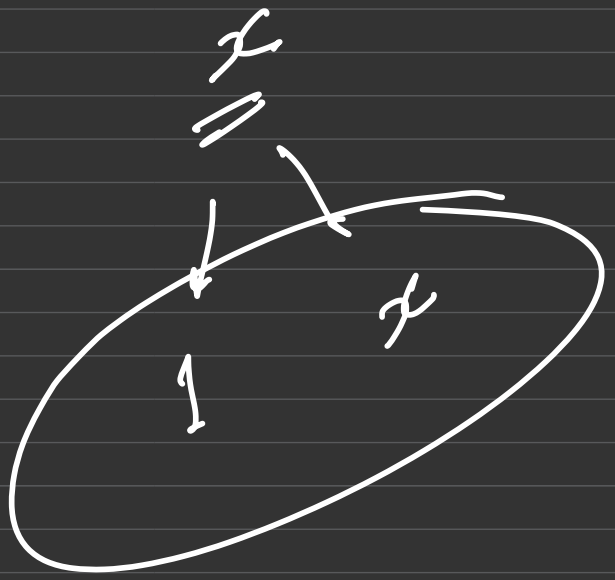
MADAM

1331

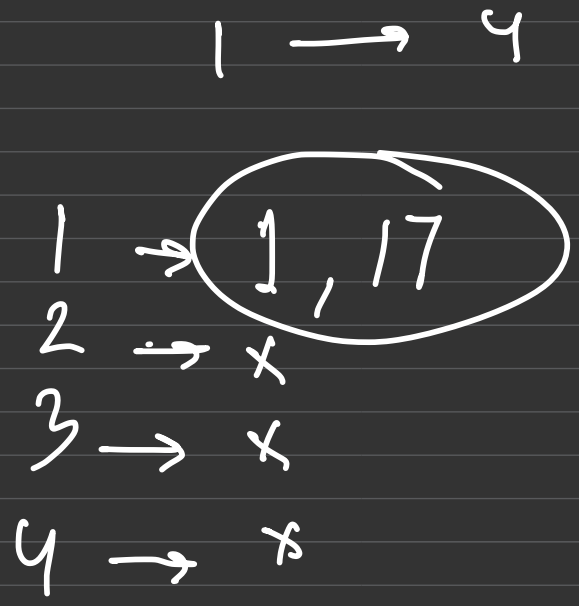
167761

Primes.





17

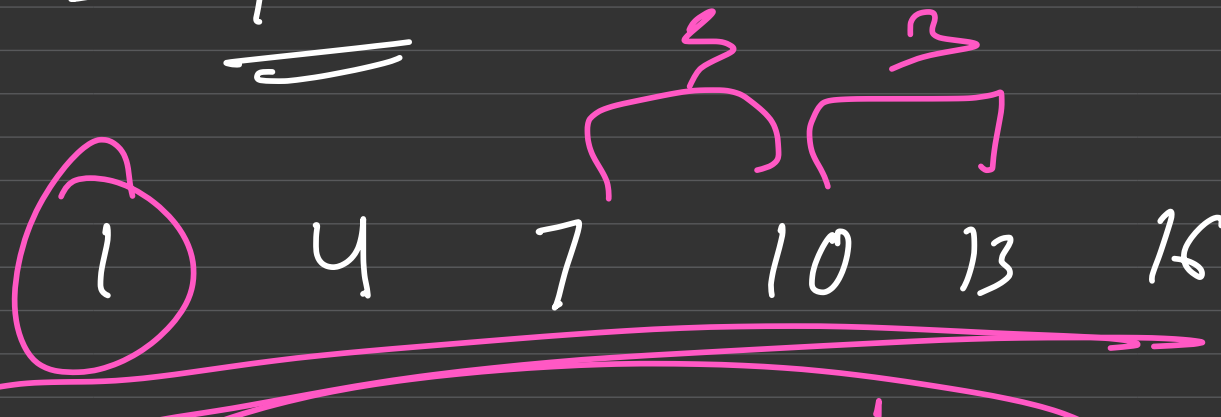


Factorial

$x! = 1 \times 2 \times 3 \times 4 \cdots x$

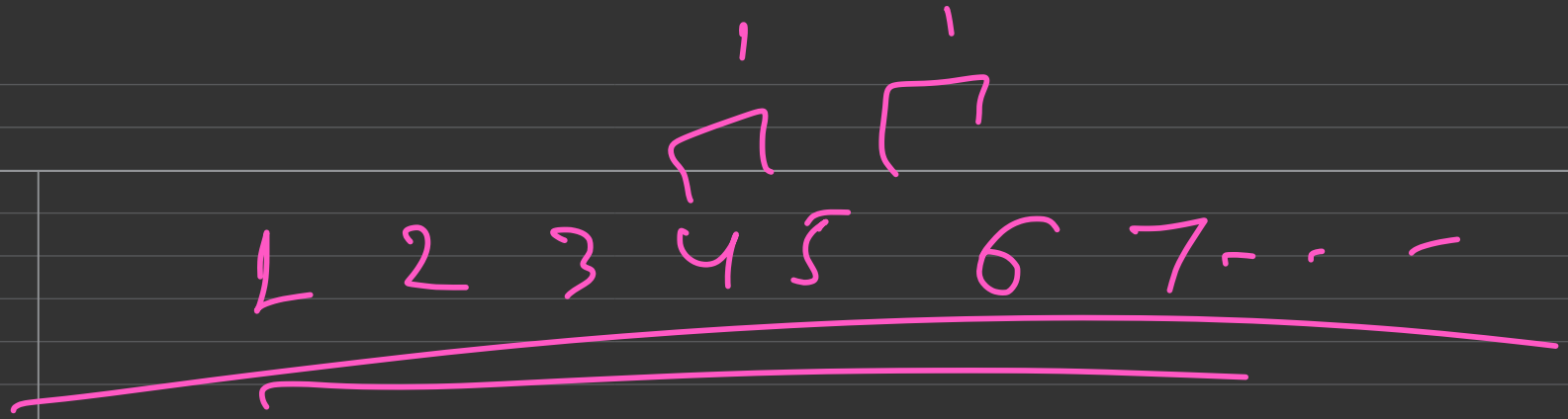
$6! = 720$

AP



$\frac{6}{2}[2(1) + 5(3)]$ $\quad \frac{n}{2}[2a + (n-1)d]$

$3[2+15]$ $\quad 17 \times 3 = 51$



$$\frac{n}{2}\left[2\times 1+(n-1)\right]$$

$$\frac{n}{2}\left[2+n-1\right]$$

$$\frac{n(n+1)}{2}$$

GP $1 + 2 + 4 + 8 + 16$

$2 \quad 2 \quad 2 \quad 2$

$$a\left(\frac{r^n - 1}{r - 1}\right)$$

$$1\left(\frac{2^5 - 1}{2 - 1}\right) \quad \frac{31}{1} = 31$$