

## Factors of a number

factor of number  $N$  will be those numbers  
which completely divides  $N$   
↳ [remainder is 0]

$$12 \Rightarrow 1, 2, 3, 4, 6, 12$$

$$24 \Rightarrow 1, 2, 3, 4, 6, 8, 12, 24$$

$$48 \Rightarrow 1, 2, 3, 4, 6, 8, 12, 16, 24, 48$$

Ques. Given a positive number, print all the  
factors of that number.

minimum factor of  $N \rightarrow 1$   
maximum factor of  $N \rightarrow N$

all factors [1 - N]  
will lie in this range  $\rightarrow$

```
for (int i = 1; i <= N; i++) {
```

```
    if (N % i == 0) {  
        // i is a factor of N  
        S.O.P (i);  
    }
```

```
}
```

$N = 6 \rightarrow 1, 2, 3, 6$

i	$i \leq N$	$6 \% i == 0$	Output	$i++$
1	true	true	1	2
2	true	true	2	3
3	true	true	3	4
4	true	false	-	5
5	true	false	-	6
6	true	true	6	7
7	false		→ Break	

## Prime Number

Not a prime number?

13  $\rightarrow$  1, 13

39  $\rightarrow$  1, 3, 13, 39 (not prime)

17  $\rightarrow$  1, 17

23  $\rightarrow$  1, 23

what is the smallest prime number?  $\rightarrow$  2

divisible by 1 and itself  $\times$

$\hookrightarrow$  1  $\rightarrow$  1

numbers whose count of factors is exactly equal to 2



Ques. Given a number ( $n \geq 2$ ) .  
print "No. is Prime" if it is prime  
print "No. is composite" if it is not prime.

↳ number having more than 2 factors

$n = 41 \rightarrow$  Prime

$n = 75 \rightarrow$  composite

$n = 2 \rightarrow$  prime

## Doubts

Given an integer (N) and you have to print all armstrong no's from 1 to n.

sum of cube of each digit is equal to the number itself.

```
int n = sc.nextInt();
```

```
int i = 1;
```

```
while (i <= n) {
```

```
// whether i is armstrong or not
```

```
int sum = 0;
```

```
int num = i;
```

```
while (num > 0) {
```

```

int digit = num % 10;
sum = sum + (digit * digit * digit);
num = num / 10;

```

```

}

```

```

if (sum == i) {
    println(i);
}

```

```

}
i++;

```

$i = 153$

sum = 0

num = 153

num	num > 0	digit	sum	num = num / 10
15 <u>3</u>	true	3	27	15
15 <u>5</u>	true	5	27 + 125	1
1 <u>1</u>	true	1	27 + 125 + 1	0
0	false	→ break		



$(sum == i)$   $\xrightarrow{153}$  true

153