

$$n \lambda = 5$$

1 ... 5

$$n \rightarrow \begin{array}{ccccc} \underline{5} & \underline{3} & \underline{1} & \underline{4} & \underline{2} \\ 5 & 4 & 3 & 2 & 1 \end{array}$$

$$\begin{array}{l} d = 4 \\ i = 2 \end{array}$$

$$\text{invh} \rightarrow \begin{array}{ccccc} \underline{5} & \underline{2} & \underline{4} & \underline{1} & \underline{3} \\ 5 & 4 & 3 & 2 & 1 \end{array}$$

$$\begin{array}{l} d = 2 \\ i = 4 \end{array}$$

$$10^n \times i$$

$$\begin{array}{r}
 & 3 & 0 & 0 & 0 & 0 \\
 + & 2 & 0 & 0 & 0 & 0 \\
 + & 8 & 0 & 0 & 0 & 0 \\
 + & 4 & 0 & 0 & 0 & 0 \\
 + & 2 & 0 & 0 & 0 & 0 \\
 \hline
 & 3 & 2 & 8 & 4 & 2 \\
 & 5 & 4 & 3 & 2 & 1
 \end{array}$$

d $\textcircled{10^{i-1}}$
 3×10^4
 7×10^3
 8×10^2
 4×10^1
 2×10^0
 $d \times 10^{i-1}$
 $T T T$

$$\begin{array}{r} 5 \quad 3 \\ - \quad 4 \\ \hline 5 \quad 4 \end{array}$$

$\frac{1}{3}$

$\frac{4}{2}$

$\frac{2}{1}$

$$d = s$$

$$i = s$$

→

$$d \times 10^{i-1}$$

$$\begin{array}{r} - \quad - \quad - \quad - \quad - \\ 5 \quad 4 \quad 3 \quad 2 \quad 1 \end{array}$$

$$d = s$$

$$i = s$$

$$1 \times 10^1 = 10$$

$$2 \times 10^3 = + 2000$$

$$3 \times 10^0 = + 3$$

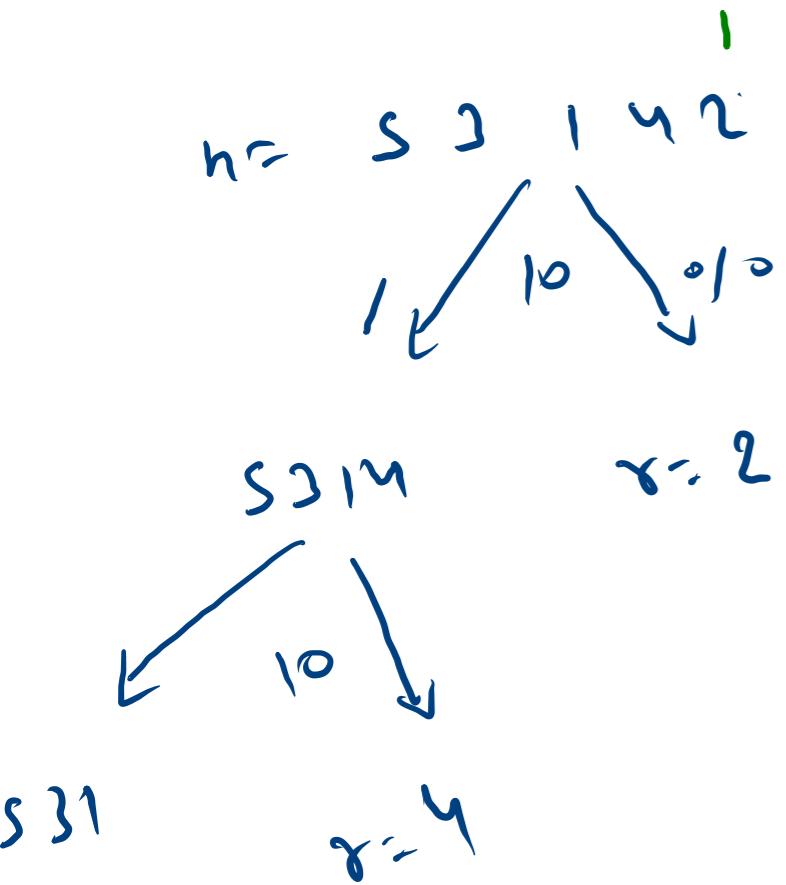
$$4 \times 10^2 = + 400$$

$$5 \times 10^4 = + 50000$$

52413

$$\begin{array}{r} 5 \quad 2 \quad 4 \quad 1 \quad 3 \\ - \quad 4 \quad 3 \quad 2 \quad 1 \end{array}$$

←



index 0 inv = 0
 1 1 $1 \times 10^1 = 10$
 2 2 $2 \times 10^3 = 2000$

The code snippet illustrates the conversion of the number 52142 into its scientific notation representation. It uses an index variable to track the power of 10 and an inv variable to store the current value. The loop iterates through each digit of the number, starting from the least significant digit (index 0). At each step, the current digit is multiplied by 10^{index} and added to the inv variable. The index is then incremented by 1 for the next iteration.

q
 γ
 $\text{index}++$
 $\text{invd} = \text{index}$
 $\text{invi} = \gamma$
 $\text{inv} = \text{inv} + [\text{invd} \times 10^{\text{invi}-1}]$
 $n = q$

```
Scanner scn = new Scanner(System.in);
int n = scn.nextInt();
int index=0;
int inv=0;

while(n != 0){
    int q = n/10;
    int r = n%10;
    index++;

    int invd = index;
    int invi = r;
    inv = inv+invd*((int)Math.pow(10, invi-1));
    n=q;
}

System.out.println(inv);
```

4321
3452
10823
inv 0 10 12
~~3012~~ 3412

$n \Rightarrow 562984$

$k = +2$

562984

845629

$-\infty$

$k = \infty$

$k = -2$

562984

298456

$n_2 123$

$k = 5$

123

312

230

120

310

231

$k = 1$

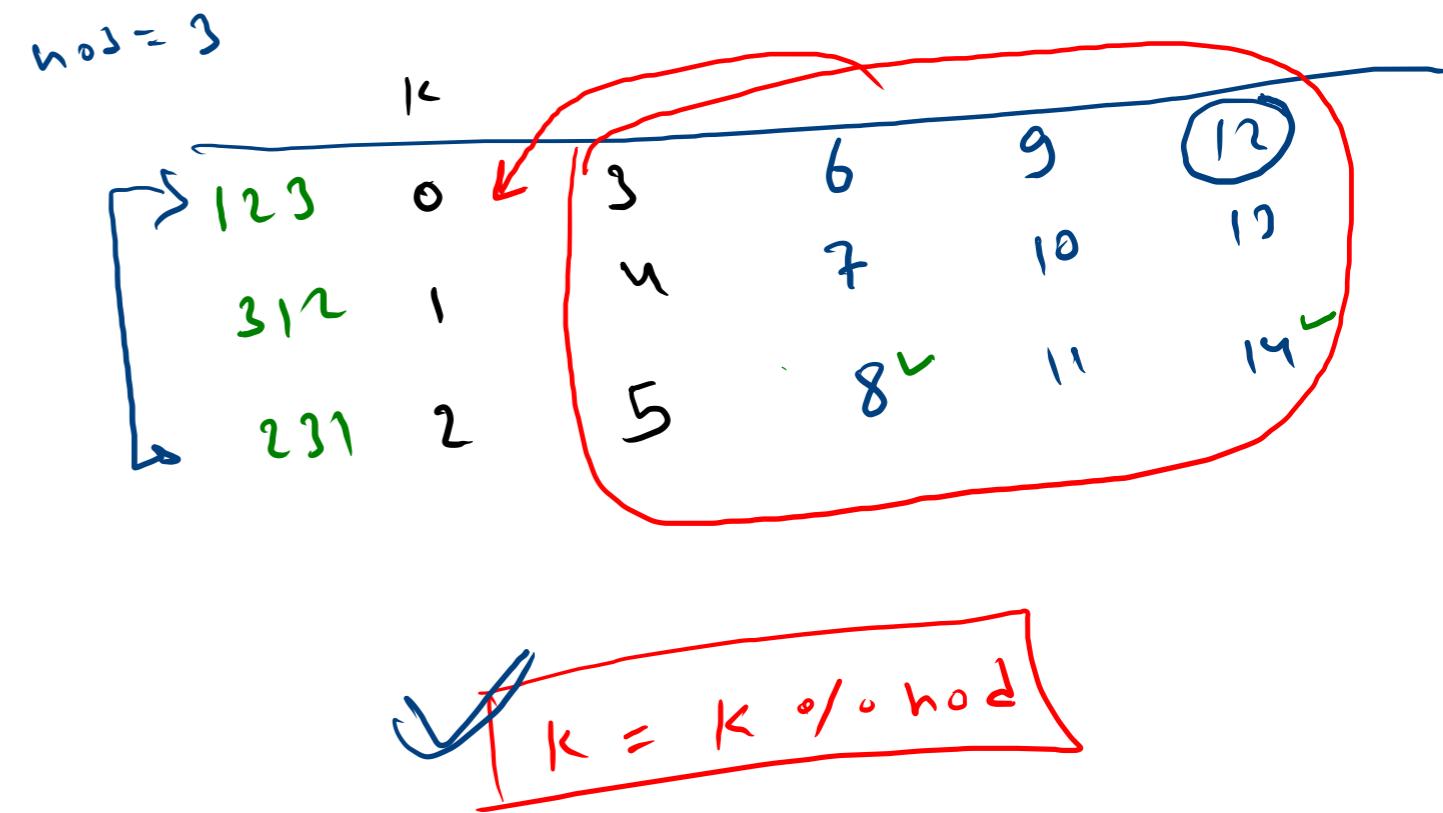
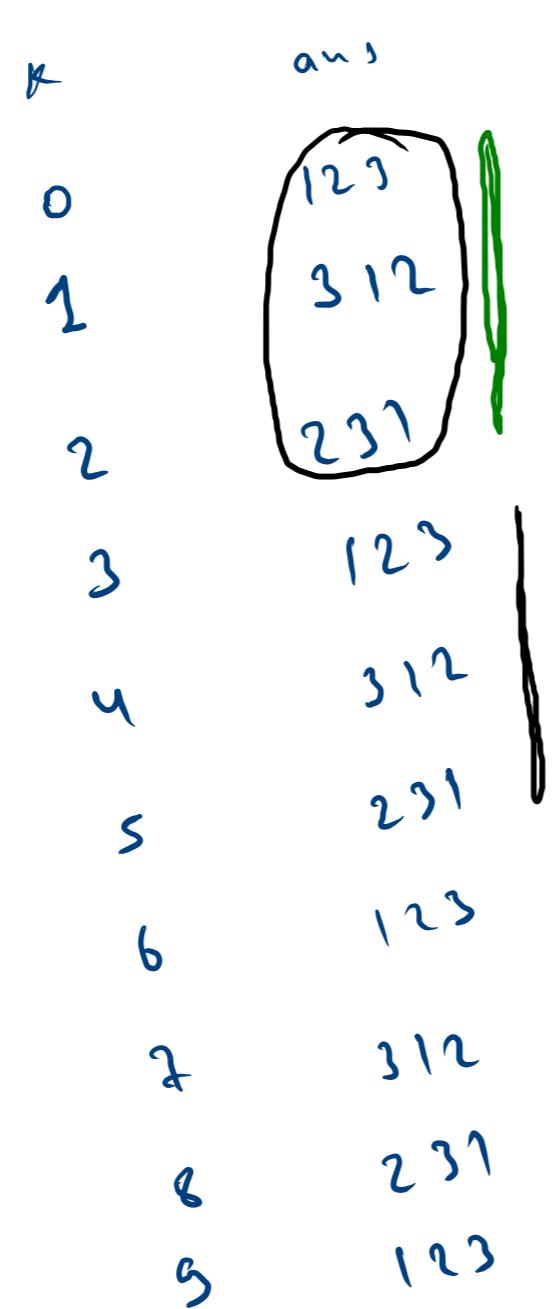
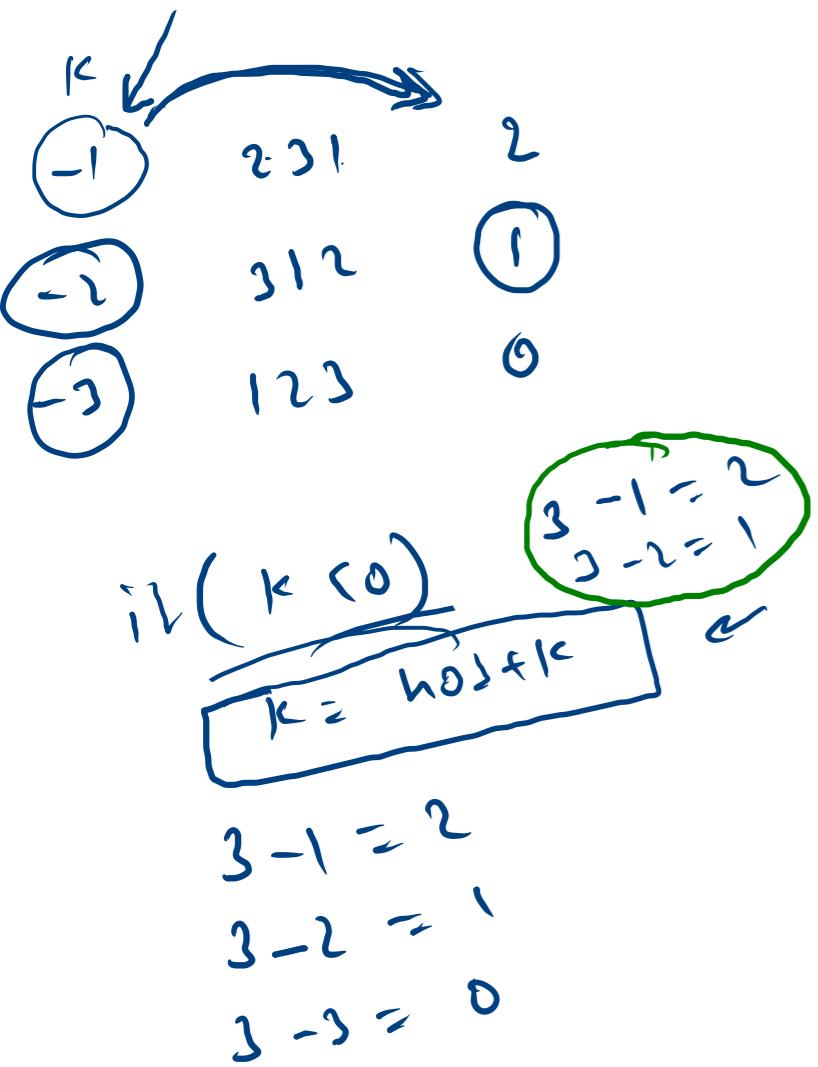
$k = 2$

$k = 3$

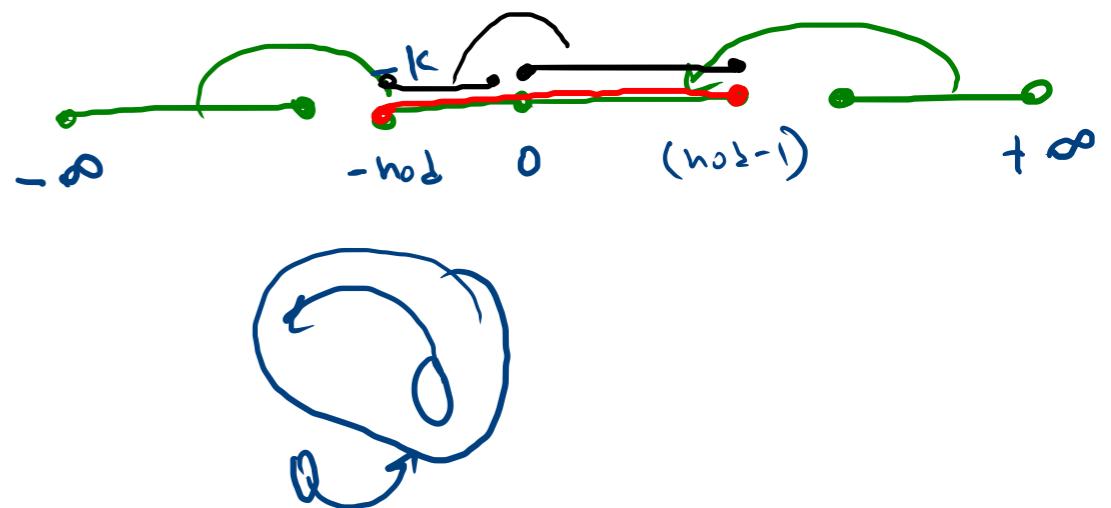
$k = 4$

$k = 5$

$$n = 123$$

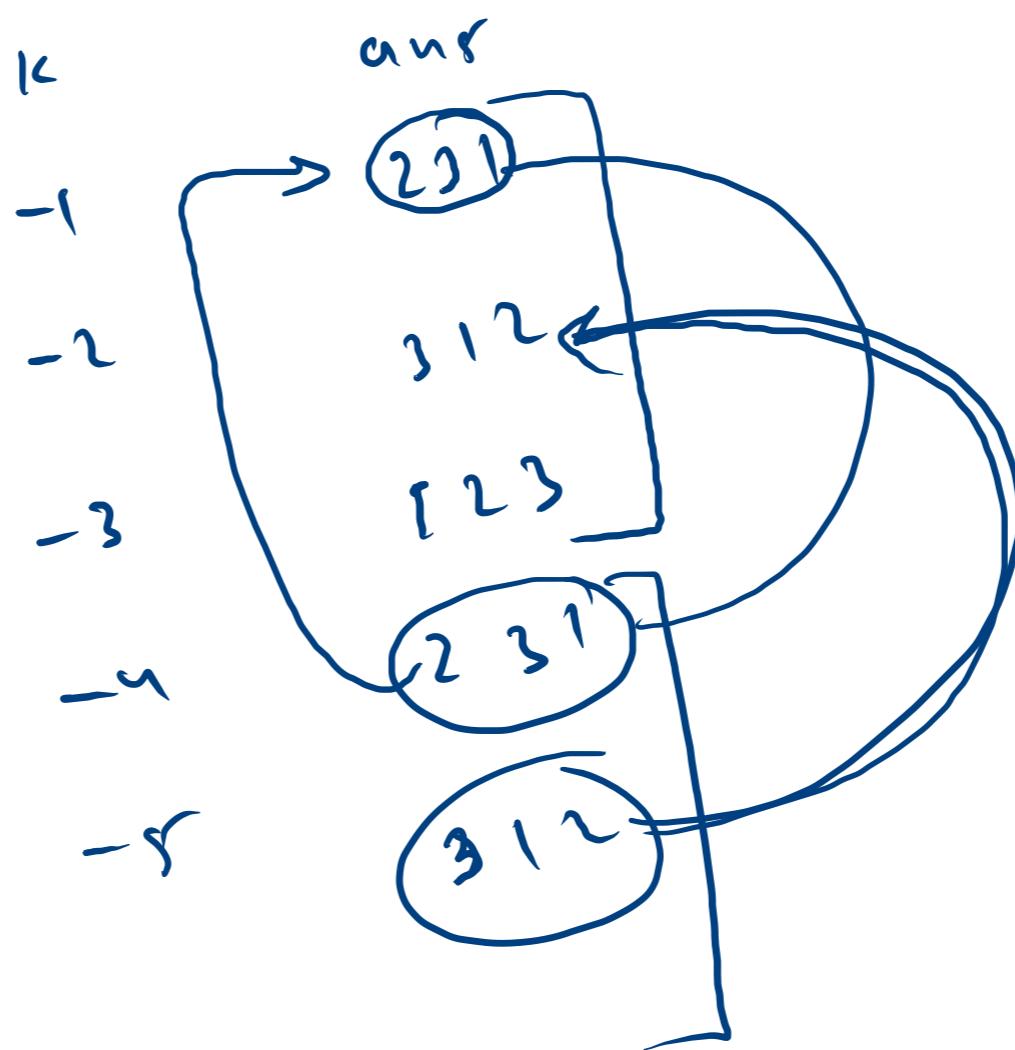


$$\checkmark k = k \circ / \circ \text{ mod}$$



123

$$K = K \text{ ohne } 123$$



$$\begin{array}{r} -1 \\ 3 \sqrt{-5} \\ -3 \\ \hline -2 \end{array}$$
$$\begin{array}{r} -1 \\ 3 \sqrt{-3} \\ +3 \\ \hline -1 \end{array}$$

$$\begin{array}{r} -s \\ -(-s) \\ -s \\ +s \\ \hline s \end{array}$$

1 2 3 4 5

$k = 0 \dots n$

$k=0 \rightarrow 12345$

$1 \rightarrow 1234\underline{5} \rightarrow 51234$ $\downarrow 10^1$

$2 \rightarrow 123\underline{45} \rightarrow 45123$ $\downarrow 10^2$

$3 \rightarrow 12\underline{345} \rightarrow 34512$ $\downarrow 10^3$

$4 \rightarrow \underline{12345} \rightarrow 23451$ $\downarrow 10^4$

12345
 $\downarrow 10^1$
 1234 5

h02-1

50000
 $\frac{1234}{51234}$

h02-3

1 2 3 4 5
1 $\downarrow 10^2$ 5 $\downarrow 10^0$
1 2 $\downarrow 10^1$ 4 5
34500 + 12 = 34512
 $8 \times 10^{(n-k)}$
 $\frac{34500}{12}$

h02-2

1 2 3 4 5
 $\downarrow 10^2$ 5

1 2 3
45000 + 123 \rightarrow 45123

45000
123

$$n = 382246$$

$$k \in \{0, \dots, (n^2-1)\}$$

$$n^2 = 6$$

$$k = k_{\text{a/o}} n^2;$$

$$\text{if } (k > 0)$$

$$k = n^2 + k$$

$$\text{div} = 10^k$$

$$q = n / \text{div}$$

$$\gamma = n \text{div}$$

$$aw = \gamma \times 10^{(n^2-1)} + q$$

$$h_1 \rightarrow 36$$

$$h_2 \rightarrow 24$$

greater ✓

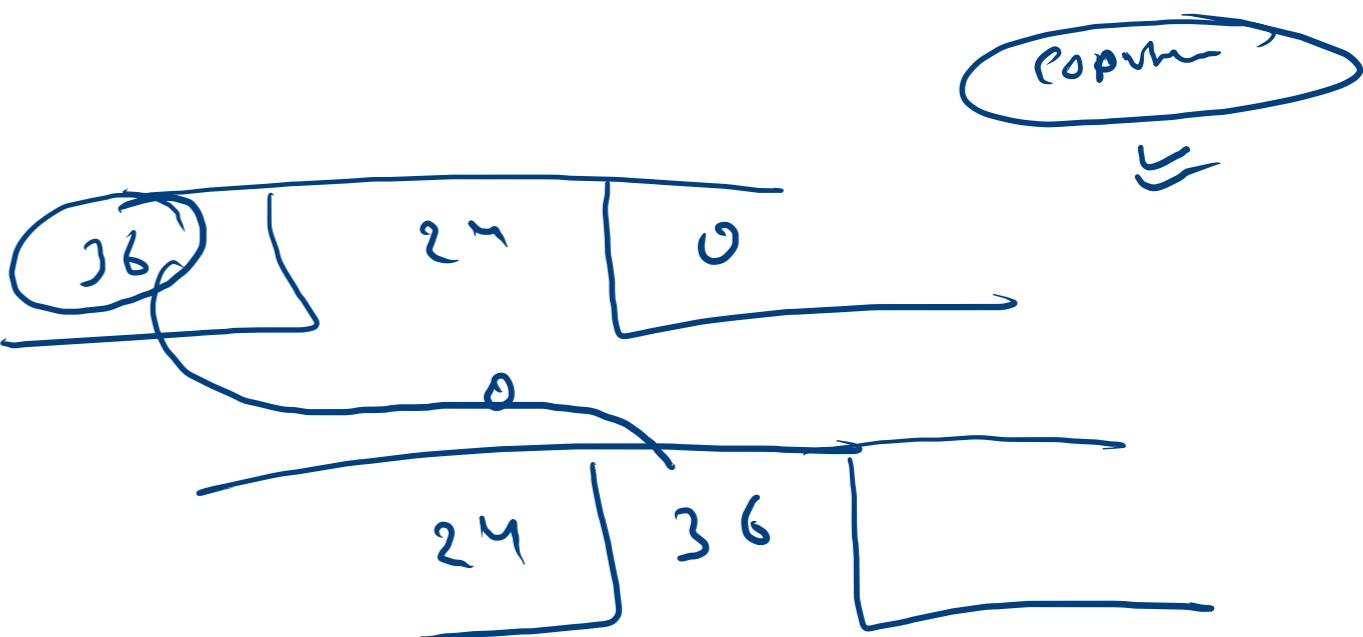
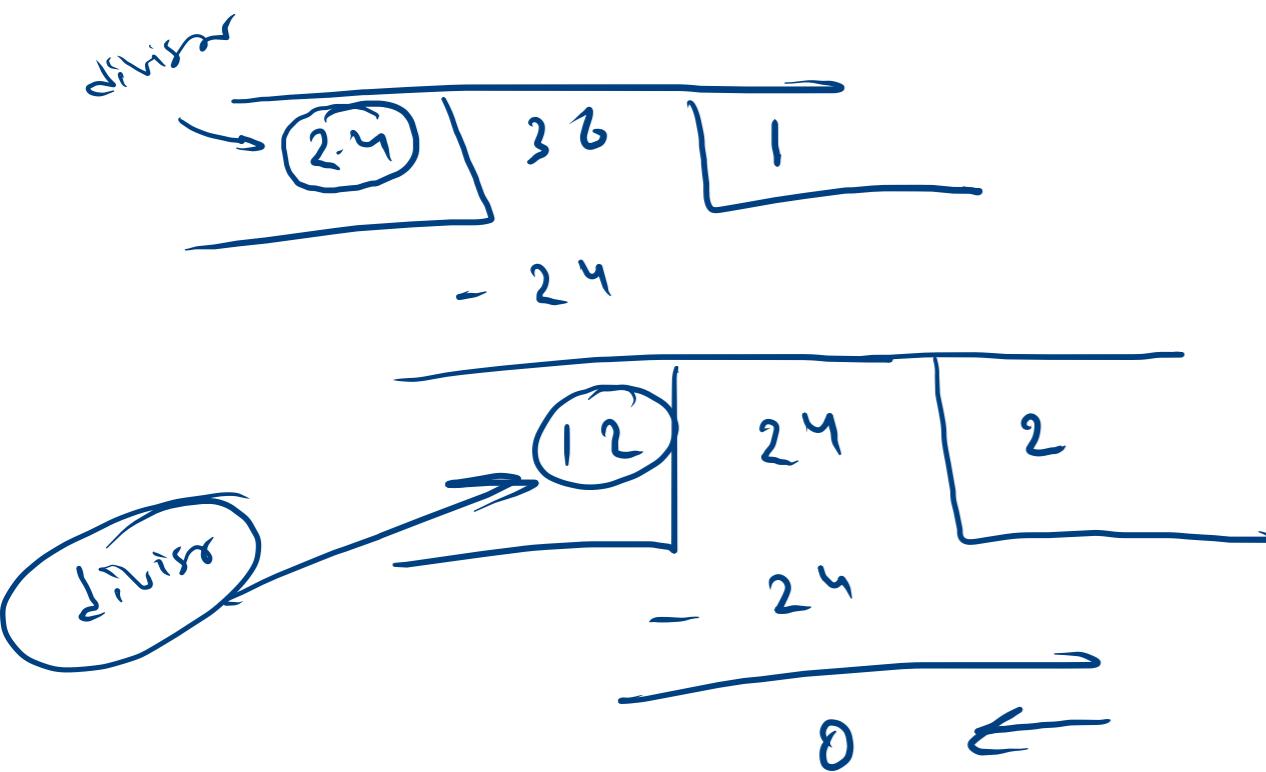
$h_1 \text{ o/o } m = 0$
$h_2 \text{ o/o } m = 0$
gcd

Smaller Lcm

prime
lcm

Lcm² $\frac{h_1 \times h_2}{\text{gcd}}$

$$\text{gcd} = \frac{h_1 \times h_2}{\text{lcm}}$$



$$\begin{array}{l} n = 2^m \\ m = 36 \end{array}$$

$$a = 2^m$$

$$b = 36$$

$$\begin{array}{r} 2^m \sqrt{b} \\ \hline 36 \\ -2^m \\ \hline 12 \\ 2^m \quad 2 \\ \hline 0 \end{array}$$

$$\begin{array}{r} 2^m \sqrt{b} \\ \hline 36 \\ -2^m \\ \hline 12 \\ 2^m \quad 2 \\ \hline 0 \end{array}$$

$$a = 2^m$$

$$b = 36$$

while($a \neq 0$) {

int $\gamma = b \% a$

$$b = a$$

$$a = \gamma$$

ans (b)

$$\begin{array}{r} 2^m \quad a \\ \hline 36 \quad b \\ \hline q \end{array}$$

$$\begin{array}{r} 12 \\ 2^m \quad b \\ \hline 2 \end{array}$$

$$\begin{array}{r} 0 \quad a \\ 12 \quad b \\ \hline \end{array}$$

```

• int n1 = scn.nextInt();
- int n2 = scn.nextInt();

• int a = n1;
- int b = n2;

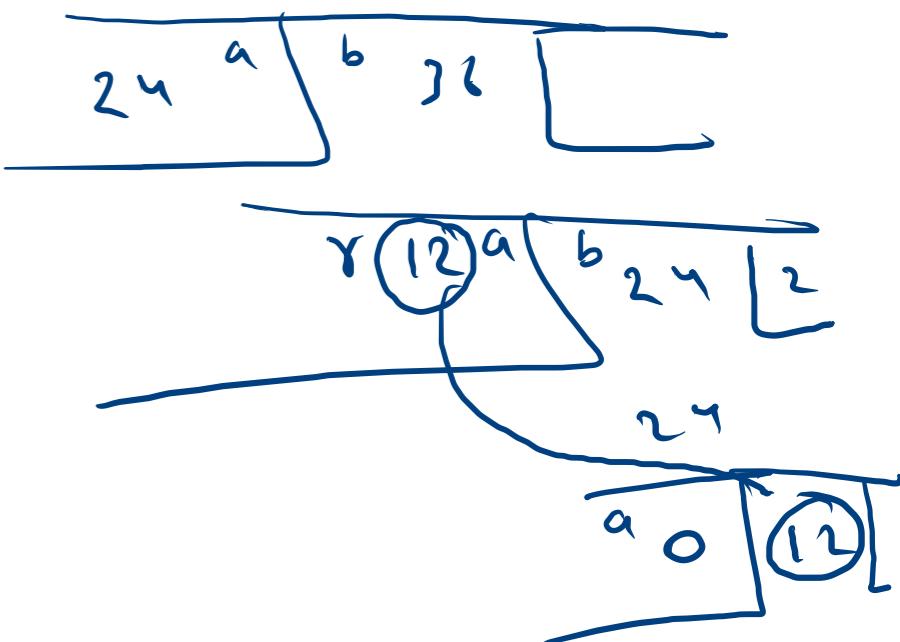
• while(a!=0){
    ↓   int r = b%a;
    b=a;
    a=r;
}

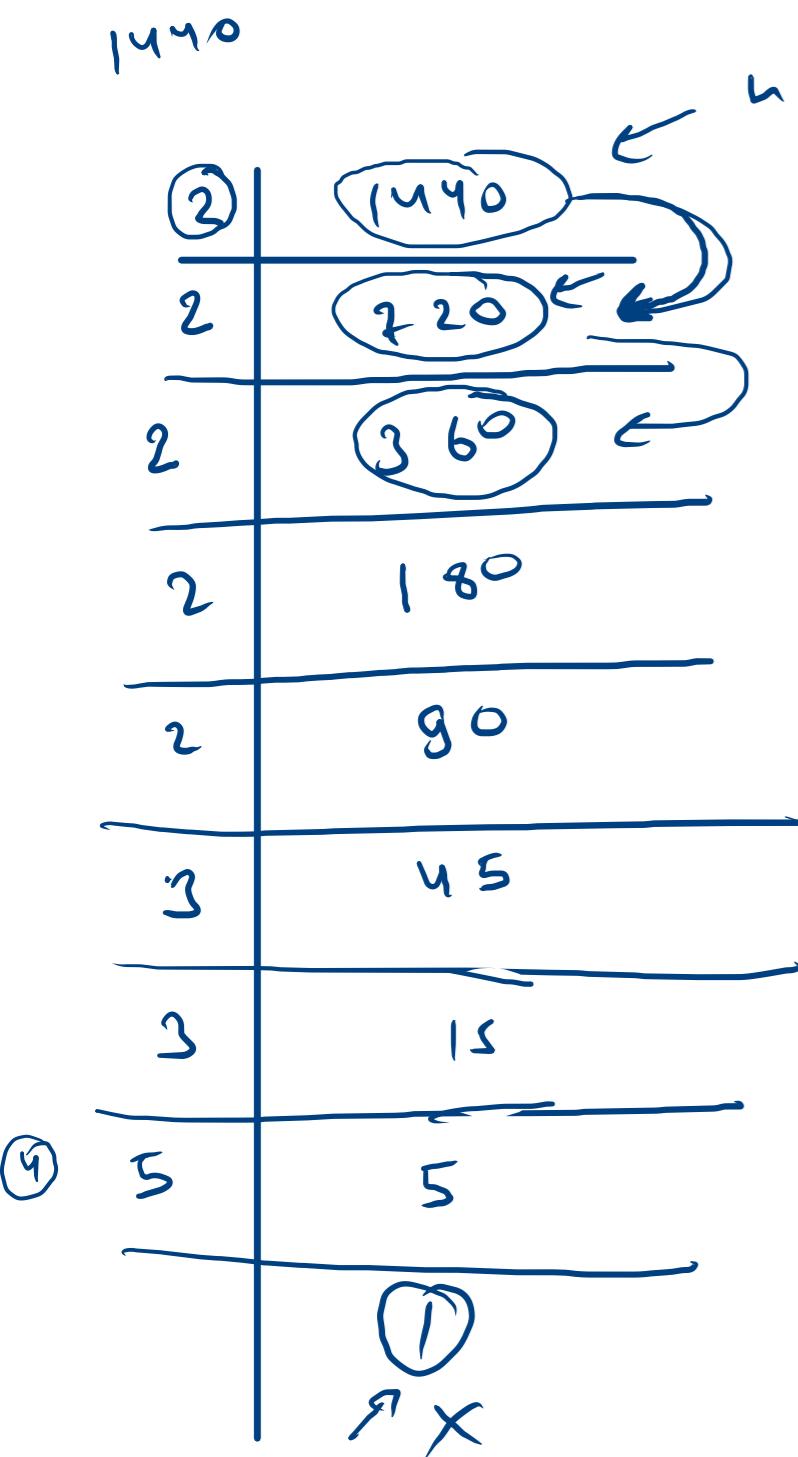
→ System.out.println(b);
• int lcm = n1*n2/b;
- System.out.println(lcm);

```

n1 24
 n2 36
 a ~~24 + 0~~
 b ~~36 - 24~~ 12

12





System.out.println()

prim ②

System.out.println(~)

int div = 2 ;

while(div <= n) {

while (n % div == 0) {
 print(div)
 n = n / div
}

y
n++

y

$n \bmod 2 = 1$

```
int n = scn.nextInt();  
  
int div=2;  
  
while(div<=n){ // loop  
    while(n%div==0){  
        System.out.print(div+" ");  
        n = n/div;  
    }  
    div++;  
}
```



n

div

~~180 80 45 15 5 1~~

2 3 4 8 6

2 - 2 - 1 - 1 - 5 -

①

variable

while (② condition) {

③ update variable

}

for(variable; condition; update) {

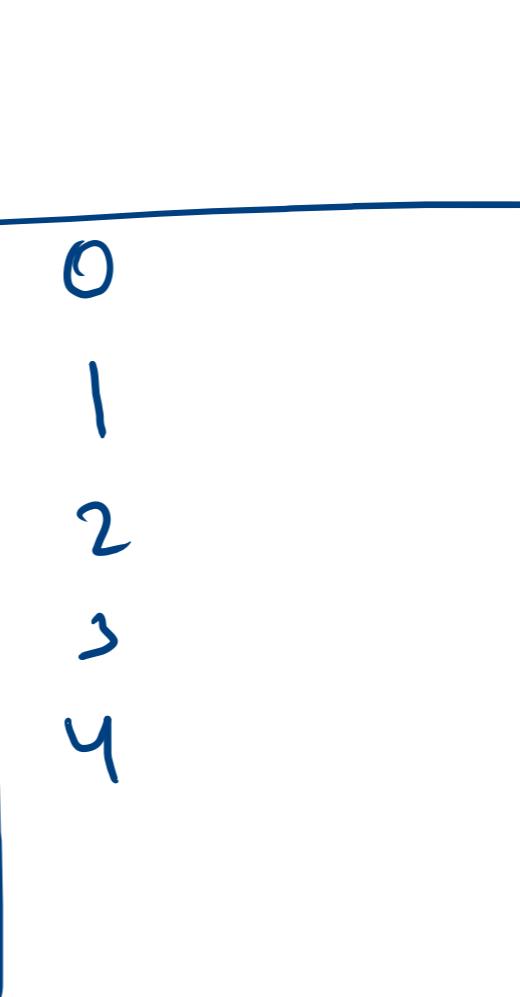
=====
 |
 |

}

$$i = 0 + 2 \times 5$$

for(int i=0; i<5; i=i+1){
 System.out.println(i);
}

s < 5



a
b
c

3

4

5

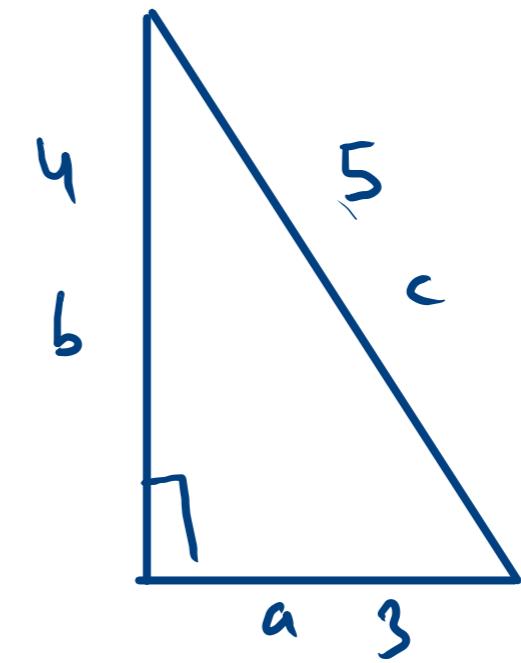
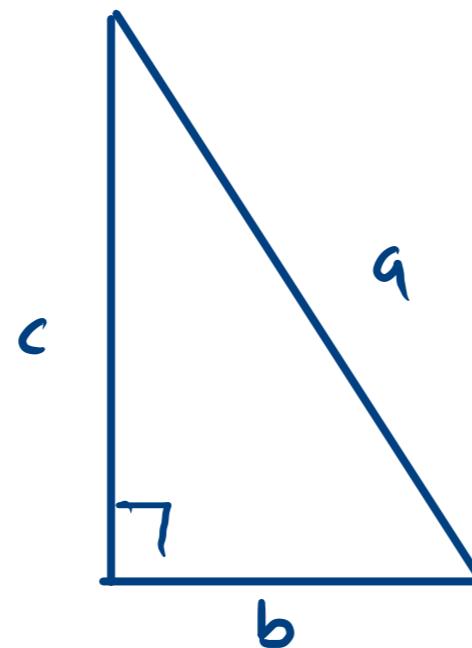
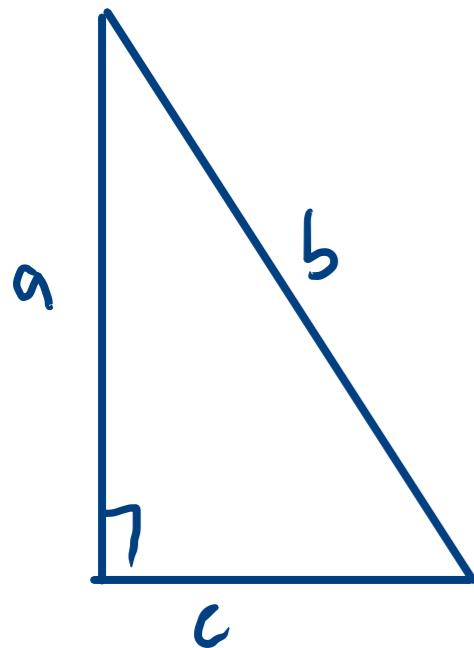
true ✓
false ✗

minimum user 
g
③ ←

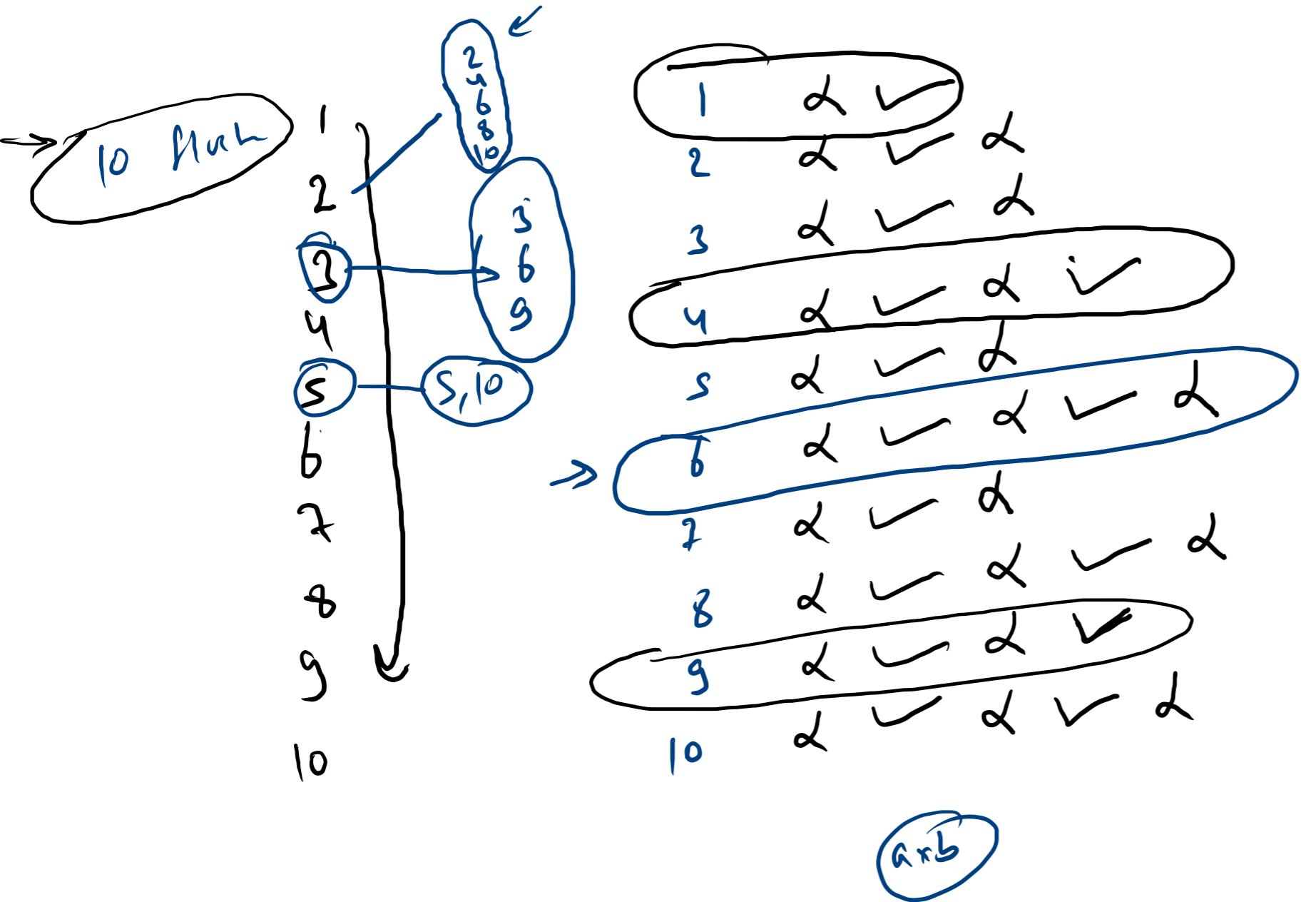
$$b^2 = a^2 + c^2$$

$$a^2 = c^2 + b^2$$

$$\begin{aligned} c^2 &= b^2 + a^2 \\ s^2 &= 3^2 + 4^2 \\ &= 9 + 16 \\ &= 25 \quad \checkmark \end{aligned}$$



$$h \approx 10$$

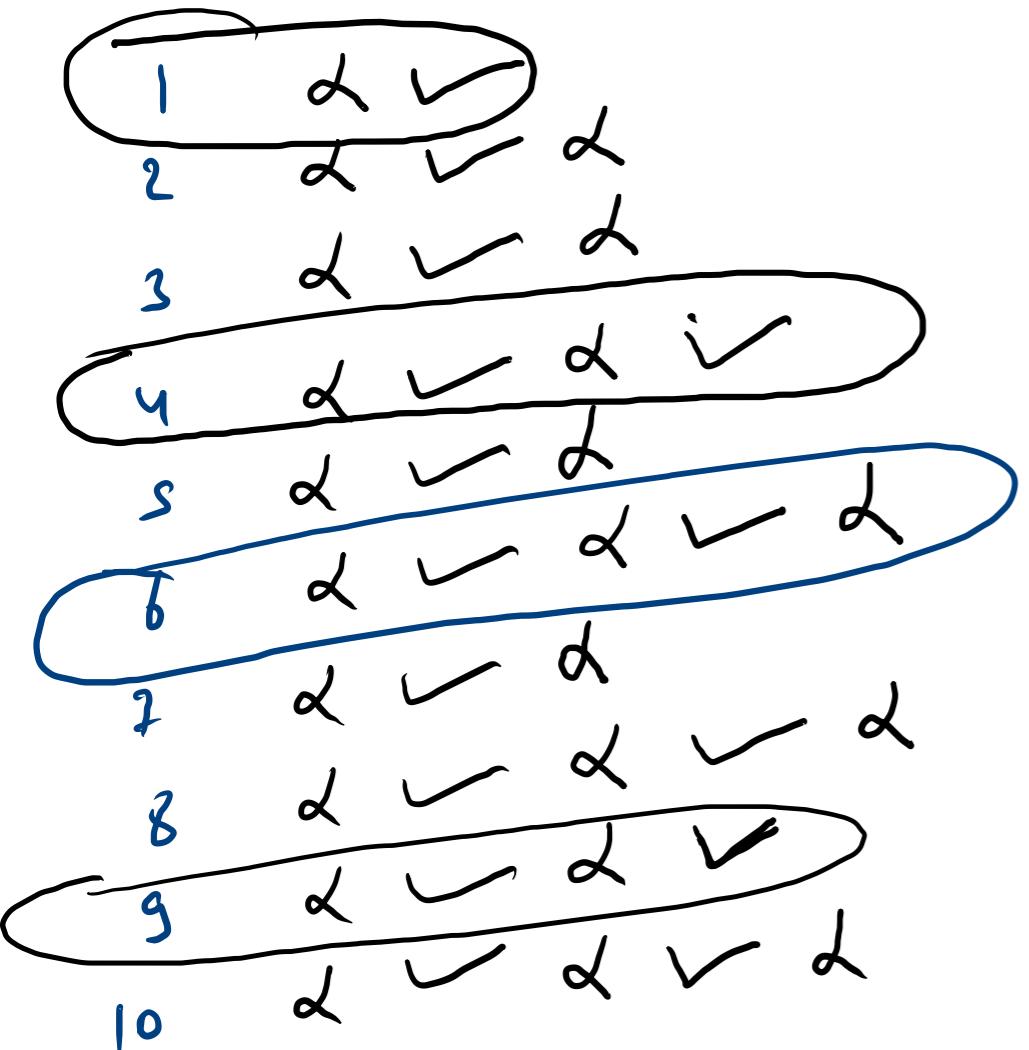


1 ✓
4 ✓
9 ✓

ran even
1 2 3 ✓ 4 even

8 d
9 d odd

even 2
odd ✓



$a \times b$

$$\Rightarrow \begin{matrix} 1 \\ 2 \\ 3 \\ 4 \end{matrix}$$

$$\begin{array}{r} 6 \\ 1 \times 6 \\ 2 \times 3 \end{array}$$

$$\begin{array}{r} 8 \\ 1 \times 8 \\ 2 \times 4 \end{array}$$

$$\begin{array}{r} 4 \\ 2, 2, 2, 2 \\ 1 \times 4 \\ 2 \times 2 \\ \cancel{2 \times 2} \\ \cancel{2 \times 2} \end{array}$$

$$\begin{array}{r} a \times q \\ a^2 \end{array}$$

$$n = 20$$

$$\begin{array}{l} \text{uxu} \leq 20 \\ 16 \\ \hline \text{sxs} \leq 20 \\ 25 \leq 20 \end{array}$$

11	$\cancel{2}$	$\cancel{2}$	\checkmark	$\cancel{2}$	\checkmark	$\cancel{2}$
12	$\cancel{2}$	$\cancel{2}$	\checkmark	$\cancel{2}$	\checkmark	$\cancel{2}$
13	$\cancel{2}$	$\cancel{2}$	\checkmark	$\cancel{2}$	\checkmark	$\cancel{2}$
14	$\cancel{2}$	$\cancel{2}$	\checkmark	$\cancel{2}$	\checkmark	$\cancel{2}$
15	$\cancel{2}$	$\cancel{2}$	\checkmark	$\cancel{2}$	$\cancel{2}$	$\cancel{2}$
16	$\cancel{2}$	$\cancel{2}$	$\cancel{2}$	$\cancel{2}$	$\cancel{2}$	$\cancel{2}$
17	$\cancel{2}$	$\cancel{2}$	\checkmark	$\cancel{2}$	$\cancel{2}$	$\cancel{2}$
18	$\cancel{2}$	$\cancel{2}$	\checkmark	$\cancel{2}$	$\cancel{2}$	$\cancel{2}$
19	$\cancel{2}$	$\cancel{2}$	\checkmark	$\cancel{2}$	$\cancel{2}$	$\cancel{2}$
20	$\cancel{2}$	$\cancel{2}$	\checkmark	$\cancel{2}$	$\cancel{2}$	\checkmark

$$\begin{array}{r} 18 \\ \times 3 \\ \hline 54 \end{array}$$

$$\begin{array}{r} 16 \\ \times 16 \\ \hline 1 \quad x 16 \\ 2 \quad x 8 \\ \hline 4 \quad x 4 = 16 \end{array}$$

odd

$$a \times a = a^2$$