Recursion Questions :-

* Letter Combinations of a phone number

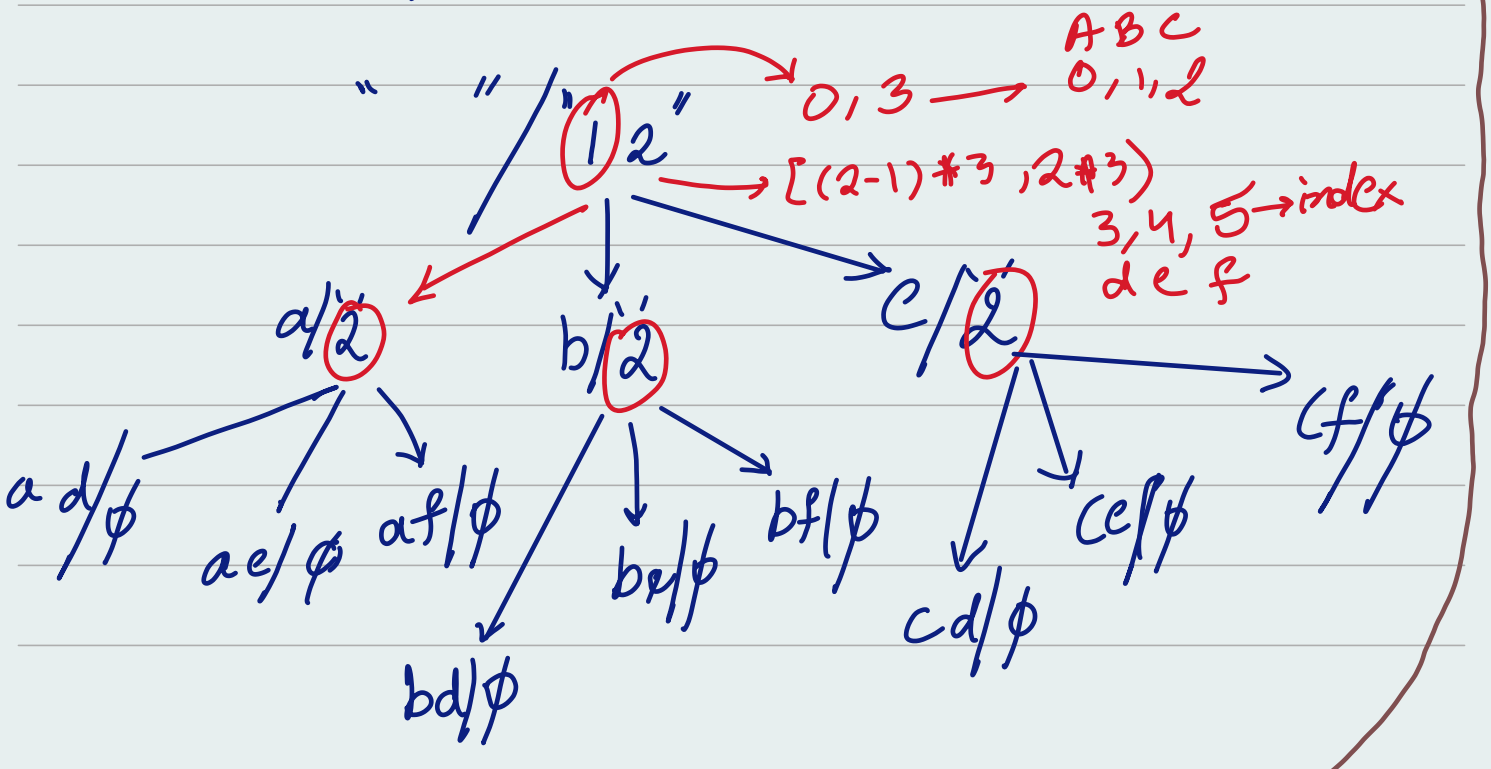
1	2	3
abc (0 1 2)	def (3 4 5)	ghi (6 7 8)
3 elements		
4	5	6
jkl (9 10 11)	mno (12 13 14)	pqr (15 16 17)
7	8	9
stu (18 19 20)	vwx (21 22 23)	yz (24 25)

All these are multiple of 3 cause 3 elements are present at every number. Because of the last number ie. having 2 elements

Input → "12"

The formular range would be

ans → ad, ae, af, bd, be, bf, cd, ce, cf



unicode value

→ a + 1 = b

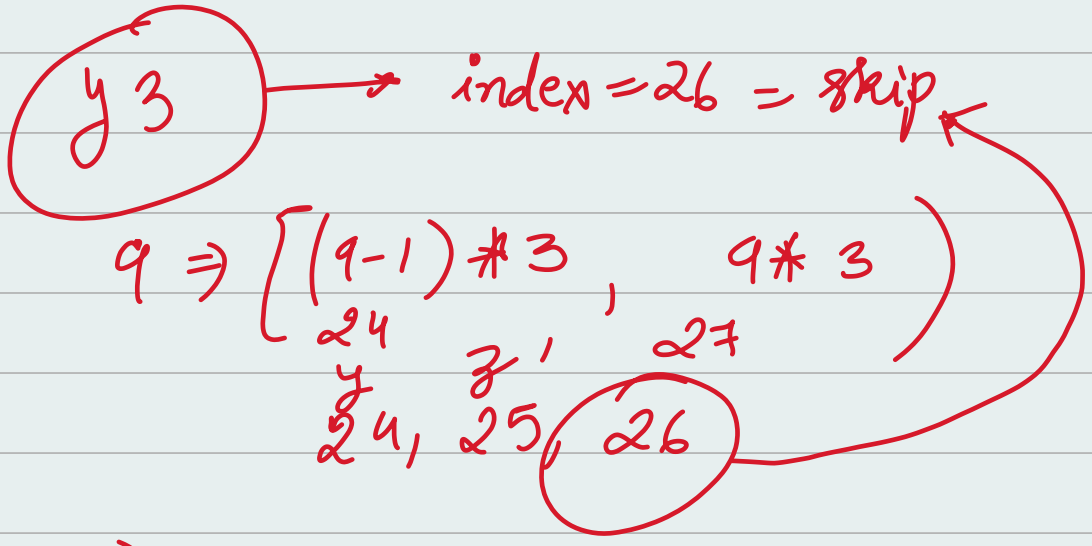
digit range = [(digit-1)*3 , digit*3)

ex: 4 ⇒ [(4-1)*3 , 4*3)

i k l

4 = [9, 12) → 9, 10, 11

elements



[3, 6)

d e f

3, 4, 5 → index

char to add in processed = 'a' + index = d, e, f

'a' + 3 = d

'a' + 4 = e

'a' + 5 = f

```
public class PhonePad {
    public static void main(String[], args){
        mobilePad("", "12");
    }
```

```
static void mobilePad (String p, String up){
    if (up.isEmpty()){
        System.out.println(p);
        return;
    }

    int digit = up.charAt(0);//this will convert '2' into 2.

    for (int i = (digit-1)*3; i<digit*3; i++){

        char ch = (char)('a'+i);

        mobilePad (p+ch, up.substring(1));
    }
}
```

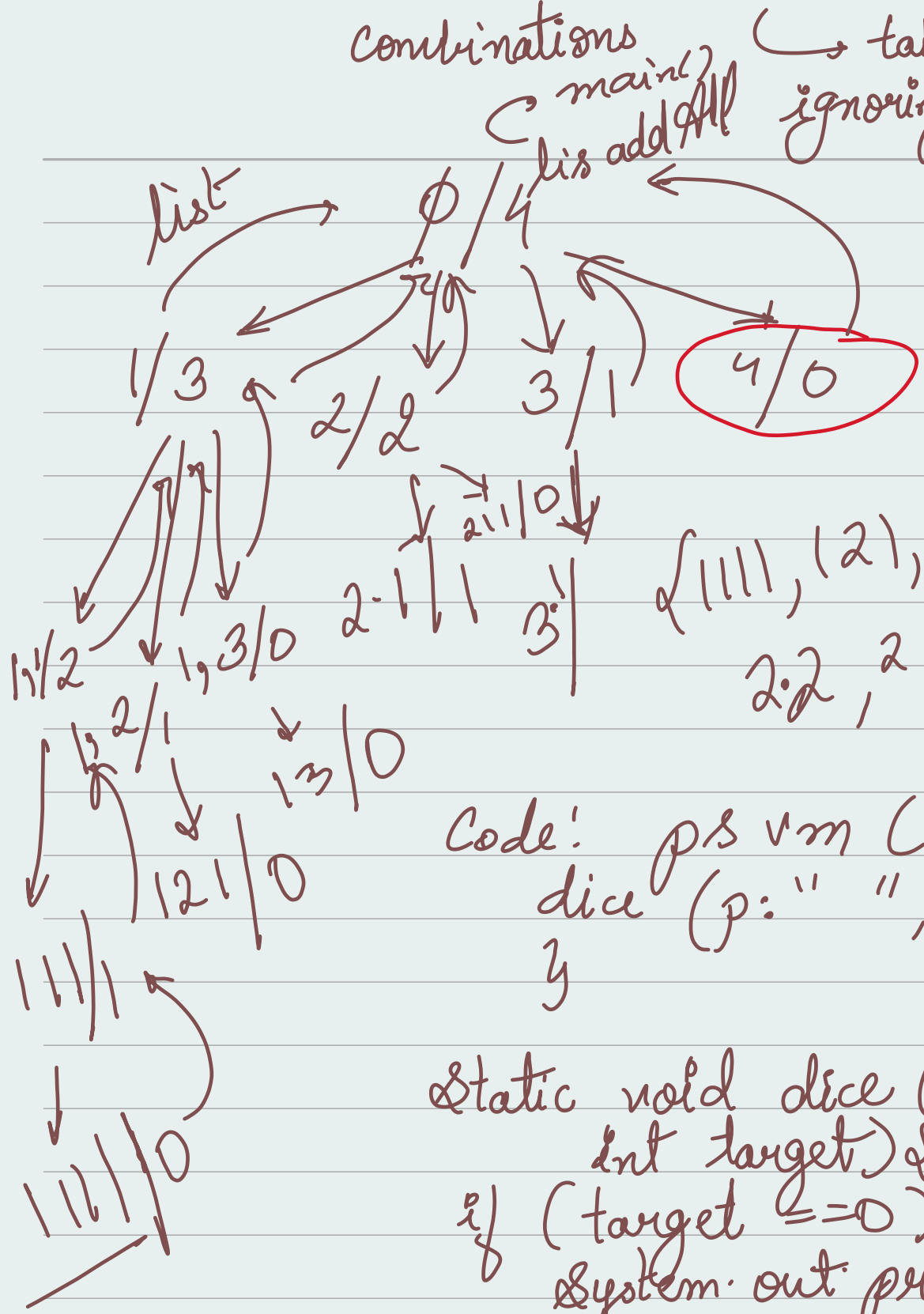
Q) Number of Dice Rolls with Target Sum.

4 → [1, 2, 3, 4, 5, 6]

Ans [(4), (3,1), (2,2), (1,1,2), ...]

Combinations → taking something, ignoring something

main() list add All



{(111, (2), 1.3), 2.2, 211, 3, 4}

Code:

```
psvm(){
    dice(p:" ", target:4);
}

Static void dice(String p,
        int target){
    if(target==0){
        System.out.println(p);
        return;
    }
    for(int i=1; i<=6 && i<=
            target; i++){
        dice(p+i, target-i);
```

3}

y