Разбор итоговых задач по 1^{му} блоку: "Основы Python 3.x"

А. Клавиши.

```python
count = 0
capsStatus = False
keyboardInput = input()
for i in keyboardInput:
    if i != ' ':
        if i == i.upper():
            count += 1 if capsStatus else 2
            capsStatus = True
        else:
            count += 1 if not capsStatus else 2
            capsStatus = False
    else:
        count += 1
print(count)
```

В. Хорошее число.

```python
import sys

def isPrime(num, divider, count):
    if num > 1:
        if divider > 0:
            if num % divider == 0:
                count += 1
            return isPrime(num, divider - 1, count)
        else:
            return True if count == 2 else False
    else:
        return False


def gcd(a,b):
    if a != b:
        return gcd(a-b if a > b else a, b-a if b > a
else b)
    else:
        return a
```

```python
n = int(input())
sys.setrecursionlimit(1000 if n < 1000 else n * 2)
digit_sum = sum([int(i) for i in str(n)])

if not isPrime(digit_sum, digit_sum, 0):
    if str(n) == str(n)[::-1]:
        if gcd(n, n-48) > digit_sum:
            print('GOOD')
        else:
            print('BAD')
    else:
        print('BAD')
else:
    print('BAD')
```

C. Координаты прямоугольника.

```python
x1y1 = [int(x) for x in input().split(' ')]
x2y2 = [int(x) for x in input().split(' ')]
x3y3 = [int(x) for x in input().split(' ')]
x1,y1,x2,y2,x3,y3 =
x1y1[0],x1y1[1],x2y2[0],x2y2[1],x3y3[0],x3y3[1]

x4,y4 = 0,0
error = False

if x1 == x2:
    x4 = x3
elif x1 == x3:
    x4 = x2
elif x2 == x3:
    x4 = x1
else:
    error = True

if y1 == y2:
    y4 = y3
elif y1 == y3:
    y4 = y2
elif y2 == y3:
    y4 = y1
```

```python
else:
    error = True

print(' '.join([str(x4),str(y4)])) if not error else
'ERROR')
```

D. Фрактал.
```python
n = int(input())
tmp = ''
torch = []

for i in range(1, n+1):
    tmp += str(i)
    torch.append((tmp + tmp[:-1][::-1]).center(2 * n -
1))

_torch = torch.copy()
_torch.reverse()
_torch = _torch[1:]

print('\n'.join(torch))
print('\n'.join(_torch))
```

E. Шифр цезаря.
```python
unenc_s = ''
key = int(input())
s = input()

for symbol in s:
    unenc_s += chr(ord(symbol) - key)

print(unenc_s)
```

F. Окончание слова.
```python
a = int(input())
if a % 10 == 1:
    if (a // 10) % 10 == 1:
        print(a, 'bochek')
    else:
        print(a, 'bochka')
```

```python
elif (a % 10) in range(2, 4+1):
    if (a // 10) % 10 == 1:
        print(a, 'bochek')
    else:
        print(a, 'bochki')
else:
    print(a, 'bochek')
```

G. Перестановки.

```python
from itertools import permutations

n = input()
k = int(input())
_n = ''
numPermutations = set(permutations(list(n), len(n)))

digitDis = []

for permutation in numPermutations:
    for digitIndex in range(len(permutation)):
        try:
            currentDigit = int(permutation[digitIndex])
            nextDigit = int(permutation[digitIndex+1])
            if abs(nextDigit - currentDigit) <= k:
                digitDis.append(False)
            else:
                digitDis.append(True)
        except IndexError:
            if sum(digitDis) == 0:
                print(''.join(permutation))
                exit()
            digitDis = []
else:
    print('UNREACHABLE')
```