

Практическая работа 7

Задача 1

```
In [6]: a,b,c,d=int(input()),int(input()),int(input()),int(input())
def min4(a,b,c,d):
    return min(min(a,b),min(c,d))
print(min4(a,b,c,d))
```

```
4
5
6
6
4
```

Задача 2

```
In [10]: x1,y1=float(input()),float(input())
x2,y2=float(input()),float(input())
def distance(x1,y1,x2,y2):
    return ((x2-x1)**2+(y2-y1)**2)**.5
print (distance(x1,y1,x2,y2))
```

```
3
-2
-1
7
9.848857801796104
```

Задача 3

```
In [13]: x1,y1=int(input()),int(input())
x2,y2=int(input()),int(input())
x3,y3=int(input()),int(input())
def distance(x1,y1,x2,y2):
    return ((x2-x1)**2+(y2-y1)**2)**.5
L=distance(x1,y1,x2,y2)+distance(x2,y2,x3,y3)+distance(x1,y1,x3,y3)
print(L)
```

```
6
5
2
-3
-1
-6
26.22531740752374
```

Задача 4

```
In [16]: x,y=float(input()),float(input())
def IsPointInSquare(x,y):
    return abs(x)<=1 and abs(y)<=1
if IsPointInSquare(x,y):
    print('YES')
else:
    print('NO')
```

0.5

0.5

YES

Задача 5

```
In [19]: x,y=float(input()),float(input())
def IsPointInSquare(x,y):
    return abs(x)+abs(y)<=1
if IsPointInSquare(x,y):
    print('YES')
else:
    print('NO')
```

-1

-1

NO

Задача 6

```
In [22]: def IsPointInCircle(x, y, xc, yc, r):
    return (x-xc)**2+(y-yc)**2<=r**2
x,y=float(input()),float(input())
xc,yc=float(input()),float(input())
r=float(input())
if IsPointInCircle(x, y, xc, yc, r):
    print('YES')
else:
    print('NO')
```

0

0

1

0

1

YES

Задача 7

```
In [39]: def IsPointInArea(x, y):
          return (((x+1)**2+(y-1)**2)<4 and 2*x+2<y and -x<y)or(((x+1)**2+(y-1)**2)
          >4 and 2*x+2>y and -x>y)
          x,y=float(input()),float(input())
          if IsPointInArea(x, y):
              print('YES')
          else:
              print('NO')
```

```
0
-5
YES
```

Задача 8

```
In [44]: def xor(x,y):
          return (x+y)%2!=0
          x=int(input())
          y=int(input())
          if xor(x,y):
              print(1)
          else:
              print(0)
```

```
1
1
0
```

Задача 9

```
In [6]: def MinDivisor(n):
          i=2
          while(i<=n):
              if (n/i)//1==n/i:
                  return i
              i+=1;
          n=int(input())
          print(MinDivisor(n))
```

```
3
3
```

Задача 10

```
In [9]: def IsPrime(n):
          i=2
          while n%i!=0:
              i+=1
          return i==n
          n=int(input())
          if(IsPrime(n)):
              print('YES')
          else:
              print('NO')
```

```
3
YES
```

Задача 11

```
In [13]: a=float(input())
n=int(input())
def power(a,n):
    if n==0:
        return 1
    else:
        return a*power(a,n-1)
print(int(power(a,n)))
```

2
3
8

Задача 12

```
In [16]: a=float(input())
n=int(input())
def power(a,n):
    an=1
    i=0
    while i<n:
        an*=a
        i+=1
    return an
print(int(power(a,n)))
```

2
3
8

Задача 13

```
In [18]: def summa(a,b):
    a += 1
    b -= 1
    if b > 0:
        return summa(a, b)
    else:
        return a
a,b=int(input()),int(input())
print(summa(a,b))
```

123
456
579

Задача 14

```
In [21]: def power(a,n):
        if n==0:
            return 1
        elif n==1:
            return a
        elif n%2!=0:
            return a*power(a,n-1)
        elif n%2==0:
            return power(a*a,n/2)
a = float(input())
n = int(input())
print(int(power(a, n)))
```

```
2
3
8
```

Задача 15

```
In [24]: def gcd(a,b):
        c=a%b;
        if c==0:
            return b
        else:
            return gcd(a,b)
a,b=int(input()),int(input())
print(gcd(a,b))
```

```
2
2
2
```

Задача 16

```
In [27]: def ReduceFraction(n, m):
        def gcd(n, m):
            if m == 0:
                return n
            else:
                return gcd(m,n)
        p=n//gcd(n,m)
        q=m//gcd(n,m)
        return p,q
n= int(input())
m=int(input())
print(*ReduceFraction(n,m))
```

```
12
16
3 4
```

Задача 17

```
In [6]: def phib(n):
        if n==1 or n==2:
            return 1
        else:
            return phib(n-1)+phib(n-2)
n=int(input())
print(phib(n))
```

3
2

Задача 18

```
In [4]: def c(n, k):
        if k==n or k==0:
            return 1
        return c(n-1,k) + c(n-1,k-1)
n, k = int(input()), int(input())
print(c(n, k))
```

4
1
4

Задача 19

```
In [3]: def summ():
        n=int(input())
        if n==0:
            return 0
        return n+summ()
print(summ())
```

34
2345
2345
2345
2345
345
3
345
3
345
1
3
424
5
453
0
11341

Задача 20

```
In [8]: def obrat():
        n=int(input())
        if n!=0:
            obrat()
        print(n)
        obrat()
```

```
8
7
2
3
1
4
5
0
0
5
4
1
3
2
7
8
```

Задача 21

```
In [10]: def move(n,x,y):
        if n==1:
            print(1,x,y)
        else:
            move(n-1,x,6-x-y)
            print(n, x, y)
            move(n-1,6-x-y,y)
        n=int(input())
        move(n,1,3)
```

```
3
1 1 3
2 1 2
1 3 2
3 1 3
1 2 1
2 2 3
1 1 3
```

Задача 22

```
In [27]: def lagrange(n):
          for i in range(4):
              s=int(n**.5)
              n=n-s**2
              if s!=0:
                  print(s)
          n=int(input())
          lagrange(n)
```

```
3
1
1
1
```

Задача 23

```
In [34]: def kub(n):
          st=''
          for i in range(7):
              s=int(n**(1/3))
              n=n-s**3
              if s!=0:
                  st+=str(s**3)+' '
          if n==0:
              print(st)
          else:
              print(0)
          n=int(input())
          kub(n)
```

```
22
0
```

Задача 24

```
In [43]: def sqr(t,k):
          t+=1
          n=int(input())
          if n!=0:
              sqr(t,k)
              t-=1
              if (n**(1/2))%1==0:
                  k+=1
                  print(n,end=' ')
              if (t==0 and k==0):
                  print(0)

          t=0
          k=0
          sqr(t,k)
```

```
777
66883
0
0
```

In []: