

# 第十回プログラミング言語 練習問題回答例

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# 練習問題①

```
import math
name = [ "A" , "B" , "C" , "D" , "E" ]
test = [ 85 , 60 , 5, 100 , 50 ]
sum = 0
for x in test:
    sum += x
average = int( sum / len(test) )
print( "平均値 ---> " , average )

sum = 0
for x in test:
    sum += ( x - average ) * ( x - average )

s = math.sqrt( sum / len(test) )
print( "標準偏差 ---> {0:5.2f}".format(s) )
```

```
> python 10-1.py
平均値 ---> 60
標準偏差 ---> 32.71
```

全部で5桁, 小数点以下二桁で表示

## 練習問題②

```
import random
a = [0]*10
for i in range(10):
    a[ i ] = random.randint(1,100)
    print( a[ i ] , end=" " )
print()

for i in range(1,9):
    print( a[ i-1 ] , a[ i ] , a[ i+1 ] , "-> " , end="" )
    print( int( ( a[ i-1 ]+a[ i ]+a[ i+1 ] ) / 3 ) )
```

## 練習問題②'

```
import random
a = [0]*10
for i in range(10):
    a[ i ] = random.randint(1,100)
    print( a[ i ] , end=" " )
print()

for i in range(1,9):
    sum = 0
    for j in range(-1,2):
        print( a[ i+j ] , end=" " )
        sum += a[ i+j ]
    print( " -> " , int(sum/3) )
```

```
> python 10-2.py
41 28 97 60 23 31 73 27 78 58
41 28 97 -> 55
28 97 60 -> 61
97 60 23 -> 60
60 23 31 -> 38
23 31 73 -> 42
31 73 27 -> 43
73 27 78 -> 59
27 78 58 -> 54
```

## 練習問題③

```
for x in range(0,11):  
    for y in range(0,11):  
        if x+y == 10:  
            print( "x=" , x , "y=" , y )
```

```
>python 10-3-1.py  
x= 0 y= 10  
x= 1 y= 9  
x= 2 y= 8  
x= 3 y= 7  
x= 4 y= 6  
x= 5 y= 5  
x= 6 y= 4  
x= 7 y= 3  
x= 8 y= 2  
x= 9 y= 1  
x= 10 y= 0
```

## 練習問題③

```
for x in range(0,11):  
    for y in range(0,11):  
        if x*x+y*y == 100:  
            print( "x=" , x , " y=" , y )
```

```
>python 10-3-2.py  
x= 0 y= 10  
x= 6 y= 8  
x= 8 y= 6  
x= 10 y= 0
```

## 練習問題④

```
for y in range(0,9):  
    for x in range(0,9):  
        if x == 4 or y == 4:  
            print( "1" , end=" " )  
        else:  
            print( "0" , end=" " )  
    print()
```

```
>python 10-4-1.py  
0 0 0 0 1 0 0 0 0  
0 0 0 0 1 0 0 0 0  
0 0 0 0 1 0 0 0 0  
0 0 0 0 1 0 0 0 0  
1 1 1 1 1 1 1 1 1  
0 0 0 0 1 0 0 0 0  
0 0 0 0 1 0 0 0 0  
0 0 0 0 1 0 0 0 0  
0 0 0 0 1 0 0 0 0
```

## 練習問題④

```
for y in range(1,10):  
    for x in range(1,10):  
        if x == (10-y) or x == y:  
            print( "1" , end=" " )  
        else:  
            print( "0" , end=" " )  
    print()
```

```
>python 10-4-2.py
```

```
1 0 0 0 0 0 0 0 1  
0 1 0 0 0 0 0 1 0  
0 0 1 0 0 0 1 0 0  
0 0 0 1 0 1 0 0 0  
0 0 0 0 1 0 0 0 0  
0 0 0 1 0 1 0 0 0  
0 0 1 0 0 0 1 0 0  
0 1 0 0 0 0 0 1 0  
1 0 0 0 0 0 0 0 1
```



# 練習問題⑤

```
import sys
n=len(sys.argv)
sum = 0
max = int(sys.argv[1])
min = int(sys.argv[1])
for i in range(1,n):
    print(sys.argv[ i ])
    x = int(sys.argv[ i ])
    sum += x
    if max < x:
        max = x

    if min > x:
        min = x

print( " 平均值" , sum / (n-1) )
print( " 最小值" , min )
print( " 最大值" , max )
```

```
>python 10-5.py 56 23 12 234 25 126 78 11
平均值 70.625
最小值 11
最大值 234
```

## 練習問題⑥

```
for x in range(1,11):  
    for y in range(1,11):  
        for z in range(1,11):  
            if x**2+y**2+z**2 == 125:  
                print( "x={} y={} z={}".format(x,y,z) )
```

```
> python10-6.py  
x=3 y=4 z=10  
x=3 y=10 z=4  
x=4 y=3 z=10  
x=4 y=10 z=3  
x=5 y=6 z=8  
x=5 y=8 z=6  
x=6 y=5 z=8  
x=6 y=8 z=5  
x=8 y=5 z=6  
x=8 y=6 z=5  
x=10 y=3 z=4  
x=10 y=4 z=3
```