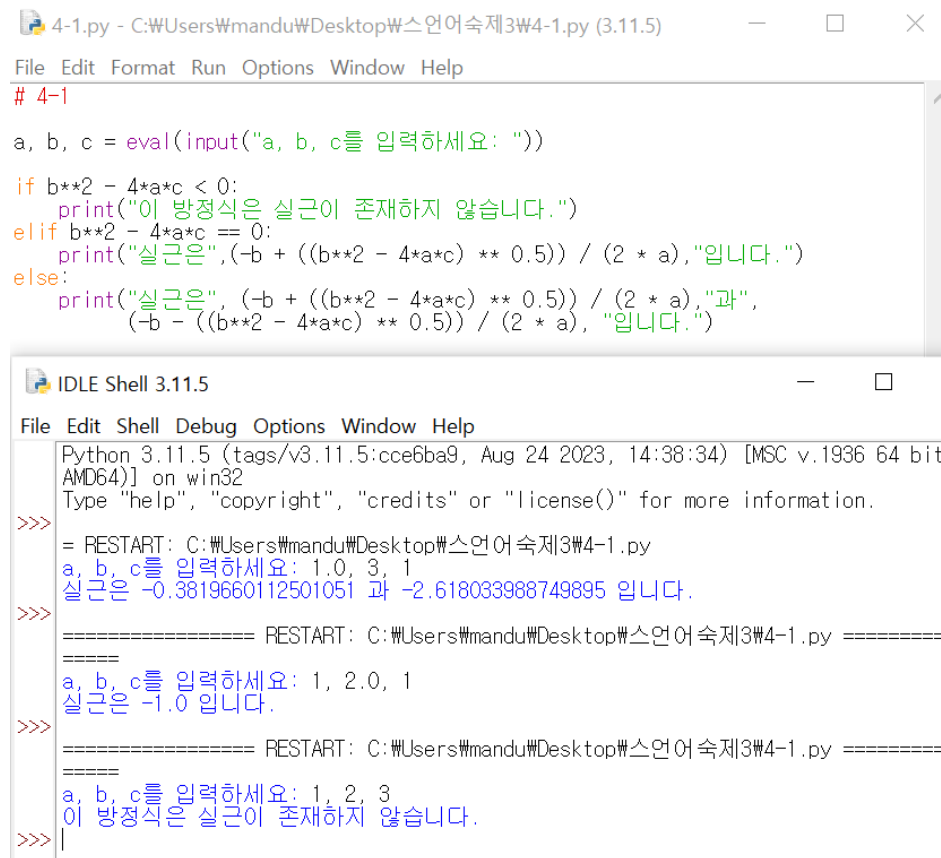


4-1.



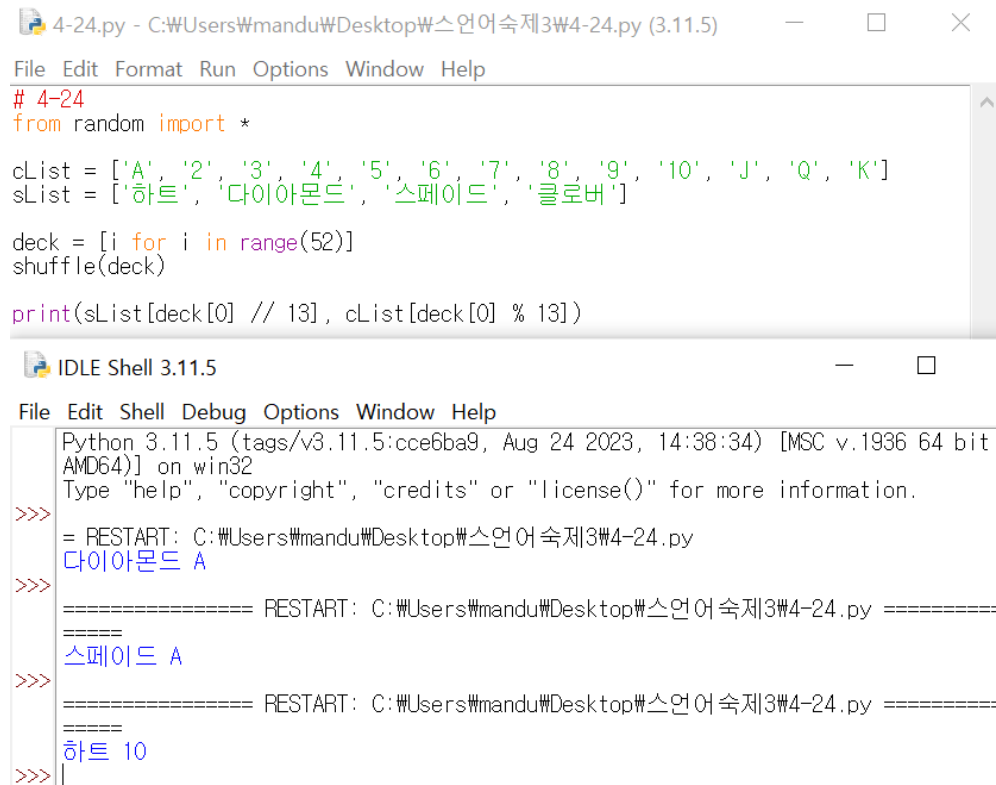
```
4-1.py - C:\Users\mandu\Desktop\스언어숙제3\4-1.py (3.11.5)
File Edit Format Run Options Window Help
# 4-1

a, b, c = eval(input("a, b, c를 입력하세요: "))

if b**2 - 4*a*c < 0:
    print("이 방정식은 실근이 존재하지 않습니다.")
elif b**2 - 4*a*c == 0:
    print("실근은", (-b + ((b**2 - 4*a*c) ** 0.5)) / (2 * a), "입니다.")
else:
    print("실근은", (-b + ((b**2 - 4*a*c) ** 0.5)) / (2 * a), "과",
          (-b - ((b**2 - 4*a*c) ** 0.5)) / (2 * a), "입니다.")

IDLE Shell 3.11.5
File Edit Shell Debug Options Window Help
Python 3.11.5 (tags/v3.11.5:cce6ba9, Aug 24 2023, 14:38:34) [MSC v.1936 64 bit
AMD64] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> = RESTART: C:\Users\mandu\Desktop\스언어숙제3\4-1.py
a, b, c를 입력하세요: 1.0, 3, 1
실근은 -0.3819660112501051 과 -2.618033988749895 입니다.
>>>
===== RESTART: C:\Users\mandu\Desktop\스언어숙제3\4-1.py =====
=====
a, b, c를 입력하세요: 1, 2.0, 1
실근은 -1.0 입니다.
>>>
===== RESTART: C:\Users\mandu\Desktop\스언어숙제3\4-1.py =====
=====
a, b, c를 입력하세요: 1, 2, 3
이 방정식은 실근이 존재하지 않습니다.
>>>|
```

4-24.



```
4-24.py - C:\Users\mandu\Desktop\스언어숙제3\4-24.py (3.11.5)
File Edit Format Run Options Window Help
# 4-24
from random import *

cList = ['A', '2', '3', '4', '5', '6', '7', '8', '9', '10', 'J', 'Q', 'K']
sList = ['하트', '다이아몬드', '스페이드', '클로버']

deck = [i for i in range(52)]
shuffle(deck)

print(sList[deck[0] // 13], cList[deck[0] % 13])

IDLE Shell 3.11.5
File Edit Shell Debug Options Window Help
Python 3.11.5 (tags/v3.11.5:cce6ba9, Aug 24 2023, 14:38:34) [MSC v.1936 64 bit
AMD64] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> = RESTART: C:\Users\mandu\Desktop\스언어숙제3\4-24.py
다이아몬드 A
>>>
===== RESTART: C:\Users\mandu\Desktop\스언어숙제3\4-24.py =====
=====
스페이드 A
>>>
===== RESTART: C:\Users\mandu\Desktop\스언어숙제3\4-24.py =====
=====
하트 10
>>>|
```

4-27.

```
4-27.py - C:\Users\mandu\Desktop\스언어숙제3\4-27.py (3.11.5)
File Edit Format Run Options Window Help
# 4-27

x, y = eval(input("x, y 좌표값을 입력하세요: "))
if x < 0 or x > 200 or y < 0 or y > 100:
    print("점은 삼각형의 외부에 있습니다.")
else:
    slope = -100/200 # -1/2
    b = y - slope*x # x,y를 지나는 기울기 -1/2인 직선의 y절편 구하기
    if b > 0 and b < 100:
        print("점은 삼각형의 내부에 있습니다.")
    else:
        print("점은 삼각형의 외부에 있습니다.")

IDLE Shell 3.11.5
File Edit Shell Debug Options Window Help
Python 3.11.5 (tags/v3.11.5:cce6ba9, Aug 24 2023, 14:38:34) [MSC v.1936 64 bit
AMD64] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:\Users\mandu\Desktop\스언어숙제3\4-27.py
x, y 좌표값을 입력하세요: 100.5, 25.5
점은 삼각형의 내부에 있습니다.
>>>
===== RESTART: C:\Users\mandu\Desktop\스언어숙제3\4-27.py =====
>>>
x, y 좌표값을 입력하세요: 100.5, 50.5
점은 삼각형의 외부에 있습니다.
>>>
```

5-39.

```
5-39.py - C:\Users\mandu\Desktop\스언어숙제3\5-39.py (3.11.5)
File Edit Format Run Options Window Help
# 5-39

import math
goal = 30000000
salary = 5000000
res = 0

if ((goal - salary) * (100/112)) >= 10000001:
    res = ((goal - salary) * (100/112))
elif ((goal - salary) * (100/110)) >= 5000001:
    res = ((goal - salary) * (100/110))
else:
    res = ((goal - salary) * (100/108))
print(math.ceil(res))

IDLE Shell 3.11.5
File Edit Shell Debug Options Window Help
Python 3.11.5 (tags/v3.11.5:cce6ba9, Aug 24 2023, 14:38:34) [MSC v.1936 64 bit
AMD64] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:\Users\mandu\Desktop\스언어숙제3\5-39.py
22321429
>>>
```

5-42.

```
5-42.py - C:\Users\mandu\Desktop\스언어숙제3\5-42.py (3.11.5)
File Edit Format Run Options Window Help
# 5-42
import random

count = 0
for i in range(1000000):
    x = random.random() * 2 - 1 # [-1:1)
    y = random.random() * 2 - 1
    if x < 0: # 1번 영역
        count += 1
    elif 0 <= x <= 1 and 0 <= y <= 1:
        slope = -1
        b = y - slope * x
        if 0 <= b <= 1: # 3번영역
            count += 1
print("횟수:", count, "확률:", count/1000000)

IDLE Shell 3.11.5
File Edit Shell Debug Options Window Help
Python 3.11.5 (tags/v3.11.5:cce6ba9, Aug 24 2023, 14:38:34) [MSC v.1936 64 bit
AMD64] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:\Users\mandu\Desktop\스언어숙제3\5-42.py
횟수: 624834 확률: 0.624834
>>>
```

6-3.

```
6-3.py - C:\Users\mandu\Desktop\스언어숙제3\W6-3.py (3.11.5)
File Edit Format Run Options Window Help
# 6-3

def reverse(number):
    result = 0
    while number:
        rem = number % 10
        result = result * 10 + rem # 자릿수를 위로 미는거
        number //= 10
    return result

def isPalindrome(number):
    if number == reverse(number):
        return True
    return False

n = eval(input("정수 입력: "))
if isPalindrome(n):
    print("대칭수입니다.")
else:
    print("대칭수가 아닙니다.")

IDLE Shell 3.11.5
File Edit Shell Debug Options Window Help
Python 3.11.5 (tags/v3.11.5:cce6ba9, Aug 24 2023, 14:38:34) [MSC v.1936 64 bit
AMD64] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:\Users\mandu\Desktop\스언어숙제3\W6-3.py
정수 입력: 12312
대칭수가 아닙니다.
>>>
===== RESTART: C:\Users\mandu\Desktop\스언어숙제3\W6-3.py =====
>>>
정수 입력: 12321
대칭수입니다.
>>>|
```

6-4.

```
6-4.py - C:\Users\mandu\Desktop\스언어숙제3\W6-4.py (3.11.5)
File Edit Format Run Options Window Help
# 6-4

def reverse(number):
    s = str(number)
    s = s[::-1]
    return int(s)

n = eval(input("정수를 입력하세요: "))
print(reverse(n))

IDLE Shell 3.11.5
File Edit Shell Debug Options Window Help
Python 3.11.5 (tags/v3.11.5:cce6ba9, Aug 24 2023, 14:38:34) [MSC v.1936 64 bit
AMD64] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:\Users\mandu\Desktop\스언어숙제3\W6-4.py
정수를 입력하세요: 1297492
2947921
>>>|
```

6-5.

```
6-5.py - C:\Users\mandu\Desktop\스언어숙제3\W6-5.py (3.11.5)
File Edit Format Run Options Window Help
# 6-5

def displaySortedNumbers(num1, num2, num3):
    l = [num1, num2, num3]
    l.sort()
    return l

a, b, c = eval(input("세 개의 수를 입력하세요: "))
res = displaySortedNumbers(a, b, c)
print("정렬된 숫자는", *res, "입니다.")

IDLE Shell 3.11.5
File Edit Shell Debug Options Window Help
Python 3.11.5 (tags/v3.11.5:cce6ba9, Aug 24 2023, 14:38:34) [MSC v.1936 64 bit
AMD64] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:\Users\mandu\Desktop\스언어숙제3\W6-5.py
세 개의 수를 입력하세요: 3, 2.45, 5
정렬된 숫자는 2.45 3 5 입니다.
>>>|
```

6-12.

```

6-12.py - C:\Users\Wmandu\Desktop\스언어숙제3\6-12.py (3.11.5)
File Edit Format Run Options Window Help
# 6-12

def printChars(ch1, ch2, numberPerLine):
    count = 0
    for i in range(ord(ch1), ord(ch2) + 1):
        print(chr(i), end=' ')
        count += 1
        if 0 == count % numberPerLine:
            print('\n')

c1 = input("ch1 입력: ")
c2 = input("ch2 입력: ")
n = eval(input("numberPerLine 입력: "))
printChars(c1, c2, n)

```

IDLE Shell 3.11.5

```

File Edit Shell Debug Options Window Help
Python 3.11.5 (tags/v3.11.5:cce6ba9, Aug 24 2023, 14:38:34) [MSC v.1936 64 bit
AMD64] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:\Users\Wmandu\Desktop\스언어숙제3\6-12.py
ch1 입력: 1
ch2 입력: Z
numberPerLine 입력: 10
1 2 3 4 5 6 7 8 9 :
; < = > ? @ A B C D
E F G H I J K L M N
O P Q R S T U V W X
Y Z
>>>

```

6-13.

```

6-13.py - C:\Users\Wmandu\Desktop\스언어숙제3\6-13.py (3.11.5)
File Edit Format Run Options Window Help
# 6-13

def m(i):
    if i == 1:
        return 1/2
    else:
        return (i / (i+1)) + m(i-1)

print("i\t\tm(i)")
for i in range(1, 21, 1):
    print(i, "\t\t", m(i))

```

IDLE Shell 3.11.5

```

File Edit Shell Debug Options Window Help
Python 3.11.5 (tags/v3.11.5:cce6ba9, Aug 24 2023, 14:38:34) [MSC v.1936 64 bit
AMD64] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:\Users\Wmandu\Desktop\스언어숙제3\6-13.py
i      m(i)
1      0.5
2      1.1666666666666665
3      1.9166666666666665
4      2.7166666666666667
5      3.5500000000000003
6      4.4071428571428575
7      5.2821428571428575
8      6.171031746031746
9      7.071031746031746
10     7.980122655122655
11     8.896789321789322
12     9.819866244866246
13     10.748437673437675
14     11.681771006771008
15     12.619271006771008
16     13.560447477359244
17     14.504891921803688
18     15.45226034285632
19     16.40226034285632
20     17.354641295237272
>>>

```

15-3.

```
15-3.py - C:\Users\mandu\Desktop\스언어숙제3\15-3.py (3.11.5)
File Edit Format Run Options Window Help
# 15-3

def gcd(m, n):
    if 0 == m % n:
        return n
    else:
        return gcd(n, m % n)

a, b = eval(input("두 정수를 입력하세요: "))
res = gcd(a, b)
print("최대공약수는", res, "입니다.")

IDLE Shell 3.11.5
File Edit Shell Debug Options Window Help
Python 3.11.5 (tags/v3.11.5:cce6ba9, Aug 24 2023, 14:38:34) [MSC v.1936 64 bit
AMD64] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:\Users\mandu\Desktop\스언어숙제3\15-3.py
두 정수를 입력하세요: 15, 5
최대공약수는 5 입니다.
>>>
```

15-4.

```
15-4.py - C:\Users\mandu\Desktop\스언어숙제3\15-4.py (3.11.5)
File Edit Format Run Options Window Help
# 15-4

def func(i):
    if i == 1:
        return 1
    else:
        return (1/i) + func(i-1)

for i in range(1, 11):
    print(func(i))

IDLE Shell 3.11.5
File Edit Shell Debug Options Window Help
Python 3.11.5 (tags/v3.11.5:cce6ba9, Aug 24 2023, 14:38:34) [MSC v.1936 64 bit
AMD64] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:\Users\mandu\Desktop\스언어숙제3\15-4.py
1
1.5
1.8333333333333333
2.0633333333333333
2.2833333333333333
2.4499999999999997
2.5928571428571425
2.7178571428571425
2.8289682539682537
2.9289682539682538
>>>
```

15-18.

```
15-18.py - C:\Users\mandu\Desktop\스언어숙제3\15-18.py (3.11.5)
File Edit Format Run Options Window Help
# 15-18

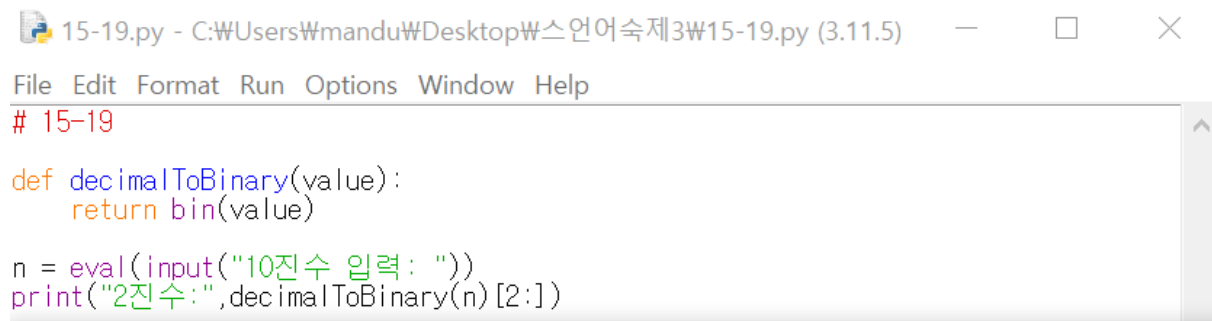
move_cnt = 0
def moveDisks(n, fromTower, toTower, auxTower):
    global move_cnt
    if n == 1: # 정지 조건
        move_cnt += 1
        print("디스크 ", n, "을/를 ", fromTower, "에서", toTower, "로 옮긴다.")
    else:
        moveDisks(n-1, fromTower, auxTower, toTower)
        move_cnt += 1
        print("디스크 ", n, "을/를 ", fromTower, "에서", toTower, "로 옮긴다.")
        moveDisks(n-1, auxTower, toTower, fromTower)

def main():
    n = eval(input("디스크의 개수를 입력하세요: "))
    # 해결 방법을 재귀적으로 찾는다.
    print("옮기는 순서는 다음과 같습니다:")
    moveDisks(n, 'A', 'B', 'C')
    print("디스크를 총", move_cnt, "번 옮겼습니다.")

main()

IDLE Shell 3.11.5
File Edit Shell Debug Options Window Help
Python 3.11.5 (tags/v3.11.5:cce6ba9, Aug 24 2023, 14:38:34) [MSC v.1936 64 bit
AMD64] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:\Users\mandu\Desktop\스언어숙제3\15-18.py
디스크의 개수를 입력하세요: 3
옮기는 순서는 다음과 같습니다:
디스크 1 을/를 A 에서 B 로 옮긴다.
디스크 2 을/를 A 에서 C 로 옮긴다.
디스크 1 을/를 B 에서 C 로 옮긴다.
디스크 3 을/를 A 에서 B 로 옮긴다.
디스크 1 을/를 C 에서 A 로 옮긴다.
디스크 2 을/를 C 에서 B 로 옮긴다.
디스크 1 을/를 A 에서 B 로 옮긴다.
디스크를 총 7 번 옮겼습니다.
>>>
```

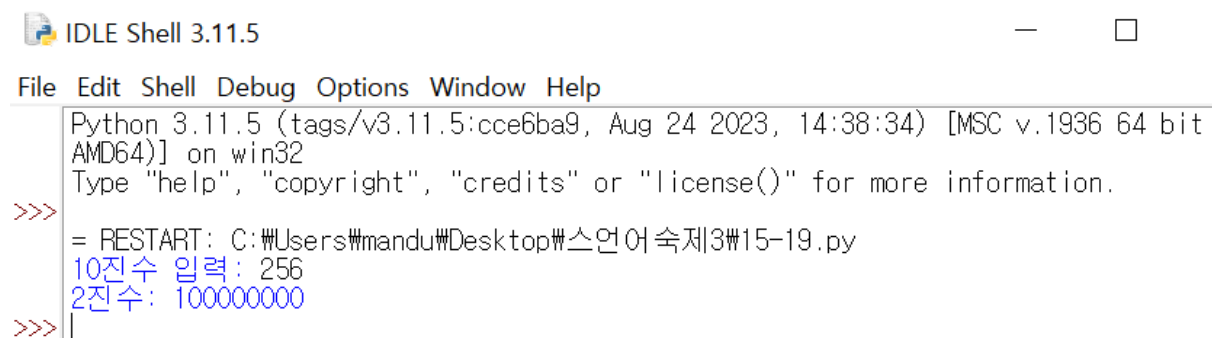
15-19.



```
15-19.py - C:\Users\mandu\Desktop\스언어숙제3\15-19.py (3.11.5)
File Edit Format Run Options Window Help
# 15-19

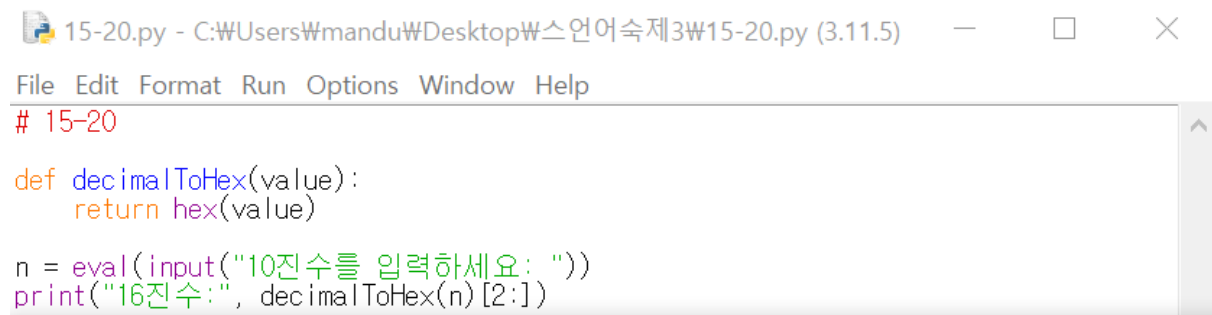
def decimalToBinary(value):
    return bin(value)

n = eval(input("10진수 입력: "))
print("2진수:", decimalToBinary(n)[2:])
```



```
IDLE Shell 3.11.5
File Edit Shell Debug Options Window Help
Python 3.11.5 (tags/v3.11.5:cce6ba9, Aug 24 2023, 14:38:34) [MSC v.1936 64 bit
AMD64] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> = RESTART: C:\Users\mandu\Desktop\스언어숙제3\15-19.py
10진수 입력: 256
2진수: 100000000
>>> |
```

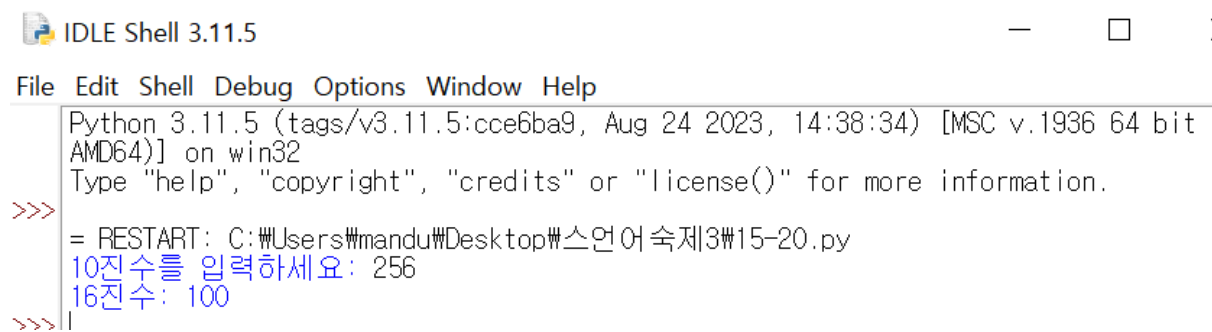
15-20.



```
15-20.py - C:\Users\mandu\Desktop\스언어숙제3\15-20.py (3.11.5)
File Edit Format Run Options Window Help
# 15-20

def decimalToHex(value):
    return hex(value)

n = eval(input("10진수를 입력하세요: "))
print("16진수:", decimalToHex(n)[2:])
```



```
IDLE Shell 3.11.5
File Edit Shell Debug Options Window Help
Python 3.11.5 (tags/v3.11.5:cce6ba9, Aug 24 2023, 14:38:34) [MSC v.1936 64 bit
AMD64] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> = RESTART: C:\Users\mandu\Desktop\스언어숙제3\15-20.py
10진수를 입력하세요: 256
16진수: 100
>>> |
```