

Comparison Operators

radius = 4

Python Operator	Name	Example	Result
<	less than	radius < 0	FALSE
<=	less than or equal to	radius <= 0	FALSE
>	greater than	radius > 0	TRUE
>=	greater than or equal to	radius >= 0	TRUE
==	equal to	radius == 0	FALSE
!=	not equal to	radius != 0	TRUE

Generating Random Numbers

```

randint(a, b) # random int between a and b
1 import random
2
3 # Generate random numbers
4
5 number2 = random.randint(0, 9)
6
7 # Prompt the user to enter an answer
8 answer = eval(input("What is "+ " + " + "
9 + str(number2) + "? "))
10
11 # Display result
12 print(number1, " + ", number2, " = ", answer,
13 " is", number1 + number2 == answer)

```

If statements

One-way If statements

A one-way if statement executes the statements if the condition is true.

Two-Way if-else Statements

A two-way if-else statement. A two-way if-else statement decides which statements to execute based on whether the condition is true or false.

Nested if and Multi-Way if-elif-else Statements

One if statement can be placed inside another if statement to form a nested if statement.

Logical Operators

Operator	Description
not	logical negation
and	logical conjunction
or	logical disjunction

Operator Precedence Chart

+, - (Unary plus and minus)
 ** (Exponentiation)
 not
 *, /, //, % (Multiplication, division, integer division, and remainder)
 +, - (Binary addition and subtraction)
 <, <=, >, >= (Comparison)
 ==, != (Equality)
 and
 or
 =, +=, -=, *=, /=, //=, %= (Assignment operators)



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one-way if

```
1 number = eval(input("Enter an integer: "))
2
3 if :
4 print( " HiF ive ")
5
6 if :
7 print( " HiE ven ")
```

two-way if-else

```
1 import random
2
3 # 1. Generate two random single -digit integers
4 number1 = random.ra ndi nt(0, 9)
5 number2 = random.ra ndi nt(0, 9)
6
7 # 2. If number1 < number2, swap number1 with
number2
8 if number1 < number2:
9 number1, number2 = number2, number1 # Simult -
aneous assignment
10
11 # 3. Prompt the student to answer "What is
number1 - number 2?"
12 answer = eval(i npu t("What is "+ str(nu mber1)
+ " - " +
13 str(nu mber2) + "? "))
14
15 # 4. Check the answer and display the result
16 if number1 - number2 == answer:
17 print( "You are correc t!")
18 else:
19 print( "Your answer is wrong. \n", number1, '-',
20 number2, " is", number1 - number2, '.')
```

Nested if and Multi-Way if-elif-else

```
1 year = eval(input("Enter a year: "))
2 zodiacYear = year % 12
3 if zodiacYear == 0:
4 print( " mon key ")
5 elif zodiacYear == 1:
6 print( " roo ste r")
7 elif zodiacYear == 2:
8 print( " lio n")
9 elif zodiacYear == 3:
10 print( " goa t")
11 elif zodiacYear == 4:
12 print( " rat ")
13 elif zodiacYear == 5:
14 print( " ox")
15 elif zodiacYear == 6:
16 print( " tig er")
17 elif zodiacYear == 7:
18 print( " rab bit ")
19 elif zodiacYear == 8:
20 print( " dra gon ")
21 elif zodiacYear == 9:
22 print( " sna ke")
23 elif zodiacYear == 10:
24 print( " hor se")
25 else:
26 print( " she ep")
```



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ComputeBMI.py

```
1 # Prompt the user to enter weight in pounds
2 weight = eval(input("Enter weight in pounds:
"))
3
4 # Prompt the user to enter height in inches
5 height = eval(input("Enter height in inches:
"))
6
7 KILOGRAMS_PER_POUND = 0.45359237 # Constant
8 METERS_PER_INCH = 0.0254 # Constant
9
10 # Compute BMI
11 weight_in_kilograms = weight * KILOGRAMS_PER_POUND
12 height_in_meters = height * METERS_PER_INCH
13 bmi = weight_in_kilograms / (height_in_meters *
height_in_meters)
14
15 # Display result
16 print("BMI is", format(bmi, ".2f "))
17 if bmi < 18.5:
18     print("Underweight")
19 elif bmi < 25:
20     print("Normal")
21 elif bmi < 30:
22     print("Overweight")
23 else:
24     print("Obese")
```

LeapYear.py

```
1 year = eval(input("Enter a year: "))
2
3 # Check if the year is a leap year
4 isLeapYear =
5
6
7 # Display the result
8 print(year, "is a leap year?", isLeapYear)
```



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