Exercise 1:

Write a Python program to calculate the square root of a number using the math module.

In [85]:
```
import math
num=float(input("Enter a number to find its square root: "))
if num>=0:
    print("The square root of", num, "is", math.sqrt(num))
else:
    print("Invalid number")
```

```
The square root of 22.0 is 4.69041575982343
```

Exercise 2:

Write a Python program to generate a random number between 1 and 10 using the random module.

In [7]:
```
import random
x=random.randint(1, 10)
print("Random number",x)
```

```
Random number 7
```

Exercise 3:

Write a Python program to calculate the factorial of a number using the math module.

In [86]:
```
import math
x = int(input("Enter a number to find it's factorial: "))
ans= math.factorial(x)
print(ans)
```

```
120
```

Exercise 5:

Create a Python module named temperature_conversion that contains functions to convert Celsius to Fahrenheit and Fahrenheit to Celsius. Write a program to use this module to perform temperature conversions.

In [83]:
```
def main():
    frht = float(input("Enter temperature in Fahrenheit: "))
    cel = float(input("Enter temperature in Celsius: "))

    ccel = fahrenheit_to_celsius(frht)
    print("Fahrenheit - ",(ccel),"° Celsius")

    cfah = celsius_to_fahrenheit(cel)
    print("Celsius -",(cfah),"° Fahrenheit")

if __name__ == '__main__':
    main()
```

```
Fahrenheit -  -5.555555555555555 ° Celsius
Celsius - 89.6 ° Fahrenheit
```

The given text for the question number 6 to 10 is: text = '''The quick brown fox jumps over the lazy dog. The quick brown fox jumps over the lazy dog again. The quick brown cat jumps over the lazy dog.'''

Exercise 6:

Write a regular expression to find all occurrences of the word "fox" in the given text

In [43]:
```
import re
x="The quick brown fox jumps over the lazy dog. The quick brown fox jumps over the lazy dog again. The quick brown ca
pattern =r'fox'
match = re.findall(pattern,x)
print( match)
```

```
['fox', 'fox']
```

Exercise 7:

Write a regular expression to find all occurrences of the word "quick" in the given text

In [37]:
```
import re
x="The quick brown fox jumps over the lazy dog. The quick brown fox jumps over the lazy dog again. The quick brown ca
pattern =r'quick'
match = re.findall(pattern,x)
print( match)
```

```
['quick', 'quick', 'quick']
```

Exercise 8:

Write a regular expression to find all occurrences of words that start with the letter "c" in the given text.

In [46]:
```
import re
x="The quick brown fox jumps over the lazy dog. The quick brown fox jumps over the lazy dog again. The quick brown ca
pattern =r'\bc\w*'
match = re.findall(pattern,x)
print( match)
```

```
['cat']
```

Exercise 9:

Write a regular expression to find all occurrences of the word "lazy" followed by any one character in the given text.

In [35]:
```
import re
x="The quick brown fox jumps over the lazy dog. The quick brown fox jumps over the lazy dog again. The quick brown ca
pattern =r'lazy'
match = re.findall(pattern,x)
print( match)
```

```
['lazy', 'lazy', 'lazy']
```

Exercise 10:

Use match() to find if the text starts with "The"

In [32]:
```
import re
x="The quick brown fox jumps over the lazy dog. The quick brown fox jumps over the lazy dog again. The quick brown ca
pattern =r'^The'
match = re.match(pattern,x)
if match:
    print("The text starts with 'The'.")
else:
    print("The text does not start with 'The'.")
```

```
The text starts with 'The'.
```