EXPRIMENT NO: 10

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CLASS: SE3/*S3*/61

import numpy as np

import math

# Exploring basic NumPy methods (without array methods)

**#** Mathematical Constants

print("Pi:", np.pi)

print("Euler's Number:", np.e)

# Trigonometric Functions

angle\_rad

=

np.deg2rad(45) # Convert 45 degrees to radians print("Sin(45 degrees):**"**, np.sin(angle\_rad)) print("Cos (45 degrees):", np.cos(angle\_rad)) print("Tan (45 degrees):", np.tan (angle\_rad))

# Exponential and Logarithmic Functions print("Exponential of **2**:", np.exp(2)) print("Natural Log of 10:", np.log(10)) print("Log base 10 of 100:**",** np.log10(100)) print("Log base 2 of 8:", np.log2(8))

# Rounding Functions

print("Ceil of 4.3:", np.ceil(4.3))

print("Floor of 4.7:", np.floor(4.7))

print("Round 4.5:", np.round(4.5))

**#** Random Number Generation

print("Random Number [0,1]:", np.random.rand())

print("Random Integer **[1,10**]:"**,** np.random.randint(1**,** 10))

**#** Statistical Functions

data =

**[1**, 2, 3, 4, 5, 6, 7, 8, 9]

print("Mean:", np.mean(data))

print("Median:", np.median(data))

print("Standard Deviation:", np.std(data))

print("Variance:", np.var(data))

# Greatest Common Divisor (GCD) and Least Common Multiple (LCM)

print("GCD of 24 and 36:", math.gcd (24, 36))

# LCM using the formula LCM(a, b)

=

abs (a\*b) // gcd(a, b) print("LCM of 6 and 8:**"**, abs(6 \* 8) // math.gcd (6, 8))

**#** Factorial and Power

print("Factorial of 5:", math. factorial (5)) print("2 to the power of 3:", np. power (2, 3))

Pi: 3.141592653589793

Euler's Number: 2.718281828459045 Sin (45 degrees): 0.7071067811865475 Cos (45 degrees): 0.7071067811865476 Tan (45 degrees): 0.9999999999999999 Exponential of 2: 7.38905609893065 Natural Log of 10: 2.302585092994046 Log base 10 of 100: 2.0

Log base 2 of 8: 3.0

Ceil of 4.3: 5.0

Floor of 4.7: 4.0

Round 4.5: 4.0

Random Number [0,1]: 0.6429746004517035

Random Integer [1,10]: 9

Mean: 5.0

Median: 5.0

Standard Deviation: 2.581988897471611

Variance: 6.666666666666667

GCD of 24 and 36: 12

LCM of 6 and 8: 24

Factorial of 5: 120

2 to the power of 3: 8