Activity – 5

Calculate mean, median, mode, variance, standard deviation, skewness, kurtosis on data set 3,7,7,19,24,24,24,25,28,30

1) Mean (μ) = (∑x)/n

= (3+7+7+19+24+24+24+25+28+30)/10

= 191/10

= 19.1

2) Median:

Ordered data: 3,7,7,19,24,24,24,25,28,30

With n=10 (even), median = (x₅ + x₆)/2

= (24 + 24)/2

= 24

3) Mode = 24

4) Variance (σ²):

σ² = ∑(x - μ)²/n

= [(3-19.1)² + (7-19.1)² + (7-19.1)² + (19-19.1)² + (24-19.1)² + (24-19.1)² + (24-19.1)² + (25-19.1)² + (28-19.1)² + (30-19.1)²]/10

= [(−16.1)² + (−12.1)² + (−12.1)² + (−0.1)² + 4.9² + 4.9² + 4.9² + 5.9² + 8.9² + 10.9²]/10

= (259.21 + 146.41 + 146.41 + 0.01 + 24.01 + 24.01 + 24.01 + 34.81 + 79.21 + 118.81)/10

= 856.9/10

= 85.69

5) Standard Deviation (σ):

σ = √σ²

= √85.69

= 9.26

6) Skewness = [∑(x - μ)³/(n × σ³)]

= [(−16.1³ + (−12.1)³ + (−12.1)³ + (−0.1)³ + 4.9³ + 4.9³ + 4.9³ + 5.9³ + 8.9³ + 10.9³)/(10 × 9.26³)]

= -0.71

7) Kurtosis = [∑(x - μ)⁴/(n × σ⁴)]

= [(−16.1⁴ + (−12.1)⁴ + (−12.1)⁴ + (−0.1)⁴ + 4.9⁴ + 4.9⁴ + 4.9⁴ + 5.9⁴ + 8.9⁴ + 10.9⁴)/(10 × 9.26⁴)]

= 2.52