STATISTICS APPLIED TO BUSINESS ADMINISTRATION. ACADEMIC YEAR 2023-2024
PRACTICAL EXERCISE 3 (20 MINUTES)

Date: _____

Complete name:_____ ID number:_____

EXERCISE 1 (4 POINTS)

Let X_1, X_2 and X_3 be three i.i.d. r.v. each having a $\gamma(2, 5)$ distribution.

1. **(2 points)** Find the distribution of the r.v. $Y = \frac{X_1+X_2+X_3}{3}$.
2. **(2 points)** What is the value of $P(4X_3 < 6.74)$?

EXERCISE 2 (6 POINTS)

Let X, Y and Z be three independent r.v. such that: $X \in N(0, \sigma^2 = 4)$, $Y \in \chi^2_8$ and $Z \in \gamma(\frac{1}{2}, 4)$.

1. **(2 points)** Find the value of k such that $P(X^2 < k) = 0.10$.
2. **(2 points)** Let $V = \dfrac{\sqrt{2}X}{\sqrt{Y}}$. Compute $P(-2.31 < V < -1.40)$.
3. **(2 points)** Let $W = \dfrac{2X^2}{Z}$. Compute $P(W > 0.0168)$.