STATISTICS APPLIED TO BUSINESS ADMINISTRATION. ACADEMIC YEAR 2017-2018
PRACTICAL EXERCISE 3 (20 MINUTES)

Date: _____

Complete name:_____ ID number:_____

EXERCISE 1 (4 POINTS)

Let X be a r.v. such that its characteristic function is given by $\psi_X(u) = (1 - 4iu)^{-1}$.

1. **(2 points)** Providing all relevant details, find the distribution of the r.v. X.
2. **(2 points)** Providing all relevant details, compute the value of $P(-1 < X < 2)$.

EXERCISE 2 (6 POINTS)

Let X, Y, W and Z be four independent r.v. such that: $X \in N(0,1)$, $Y \in N(0,4)$, $Z \in \chi^2_7$ and $W \in \gamma(\frac{1}{2}, 3)$.

1. **(2 points)** If we define the r.v. $Y_1 = \frac{2X}{Y}$, then compute k such that $P(Y_1 \leq k) = 0.90$.
2. **(2 points)** Compute $P(3.45 \leq W < 12.6)$.
3. **(2 points)** If we define the r.v. $Y_2 = \frac{6Z}{7W}$, compute $P(Y_2 \leq 4.21)$.