STATISTICS APPLIED TO BUSINESS ADMINISTRATION
ACADEMIC YEAR 2015-2016
PRACTICAL EXERCISES 6 AND 7 (30 MINUTES)

Date: _____

Complete name:_____ ID number:_____

EXERCISE 1 (10 POINTS)

Let X be a r.v. having a uniform distribution on the interval $(\theta, 4)$. In order to test the null hypothesis $H_0 : \theta = -4$ against the alternative hypothesis $H_1 : \theta = 0$, a r.s. of size $n = 1$, X_1, has been taken, and it is decided that the null hypothesis will be rejected if $X_1 > 1$.

1. **(5 point)** Compute the significance level for this test.

2. **(5 points)** Compute the power for this test.

EXERCISE 2 (10 POINTS)

A given study focuses on the analysis of the differences in the grades students in the three available groups (i.e., for the three different teaching methods) may have. More specifically, we are interested in analyzing if the specific teaching method being used in the course has any effect on students' grades. In order to do so, **three r.s.**, each of size 200 students, respectively, have been taken in each of the different teaching method groups, and information on the grades students obtained (fail, good, very good, and excellent) for the year 2015 was recorded.

	Fail	Good	Very good	Excellent	Total
Method T1	60	85	35	20	$n_1 = 200$
Method T2	50	100	20	30	$n_2 = 200$
Method T3	70	70	30	30	$n_3 = 200$
Total	$n_F = 180$	$n_G = 255$	$n_{VG} = 85$	$n_E = 80$	$n = 600$

At the $\alpha = 0.01$ significance level, and using the available information from the sample, can we state that the there is a significant statistical difference in the grades students have obtained in the three different teaching method groups for the course?