DESIGN AND DATA ANALYSIS IN PSYCHOLOGY I.
PARTIAL 1, B
April, 2014

Name: _____
Number of identification: _____

Exercise 1 *(6 points)*.

$f_i x$:	$f_i x^2$	Interval	f	rf_i	$\%_i$	F_i	CRF_i	$c_i\%$	x	x^2
215	4622.5	20-23	10	0.15	15	10	0.15	15	21'5	462.25
294	7203	23-26	12	0.18	18	22	0.34	34	24'5	600.25
220	6050	26-29	8	0.12	12	30	0.46	46	27'5	756.25
305	9302.5	29-32	10	0.15	15	40	0.61	61	30'5	930.25
368.5	12344.75	32-35	11	0.17	17	51	0.78	78	33'5	1122.25
146	5329	35-38	4	0.06	6	55	0.85	85	36'5	1332.25
395	15602.5	38-41	10	0.15	15	65	1	100	39'5	1560.25
1943.5	60454.25	Σ	65	1 (0.98)	100 (98)					

a) Complete the table.

b) Calculate the percentile 80.

c) Calculate the decile 4.

d) Calculate the Pearson variation coefficient.

e) Represent the data in an appropriate graphic.

f) Calculate the Z score of a participant that obtained X = 36.

Exercise 2 *(2 points)*. The scores of a group of participants is one variable distributed normally, with a mean of 5 and a standard deviation of 2. Knowing this information, calculate:

a) The percentage of people who obtained a raw score equal or less than 7.

b) The two raw scores that delimit the central 95% of the data.

c) The two raw scores that delimit the most extreme 10% of the data.

d) The raw score that leaves the 20% of the cases above (x encima) itself.

(ex1)

b) $P_{80} = L_i + \frac{1}{f_i}\left(\frac{i \cdot n}{k} - F_i\right) = 34'5 + \frac{4}{4}\left(52 - 51\right) = 34'5 + 1 = 35.5$

$\frac{i \cdot n}{k} = \frac{80 \cdot 65}{100} = 52$

$I = 38.5 - 34.5 = 4$

c) $D_4 = L_i + \frac{1}{f_i}\left(\frac{i \cdot n}{k} - F_i\right) = 25'5 + \frac{4}{8}\left(26 - 22\right) = 25'5 + 0.5 \cdot 4 = 25'5 + 2 = 27'5$

$\frac{i \cdot n}{k} = \frac{4 \cdot 65}{10} = 26$

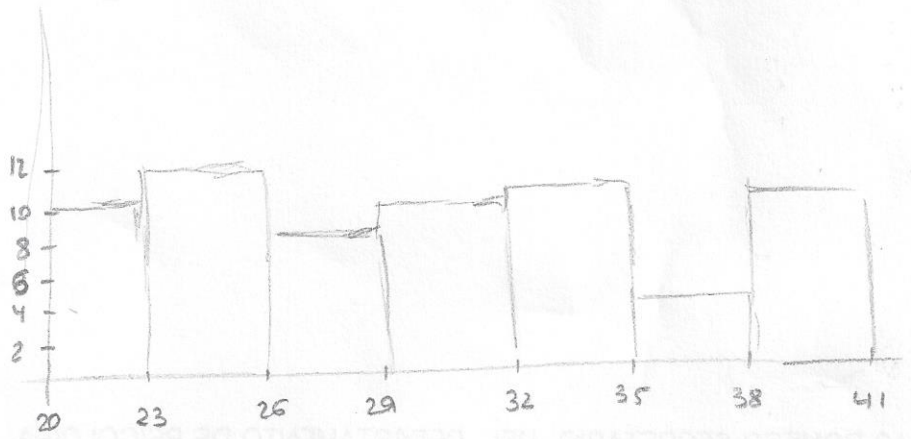
d) $VC = \frac{S}{\bar{X}} \cdot 100 = \frac{6.005}{29.9} \cdot 100 = 0.20 \cdot 100 = 20$

$S^2 = \frac{\Sigma f_i x^2}{n} - \bar{X}^2 = \frac{60454.25}{65} - 29.9^2 = 930.065 - 894.01 = 36.055$

$\bar{X} = \frac{\Sigma f_i x_i}{n} = \frac{1943.5}{65} = 29.9$

$S = \sqrt{S^2} = \sqrt{36.055} = 6.005$

e)



f) $z = \frac{x - \bar{x}}{s} = \frac{36 - 29.9}{6.005} = \frac{6.1}{6.005} = 1.016$

EXERCISE 2

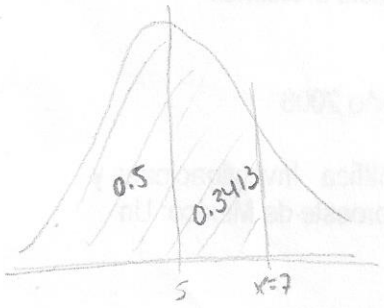
$\bar{x} = 5$

$s = 2$

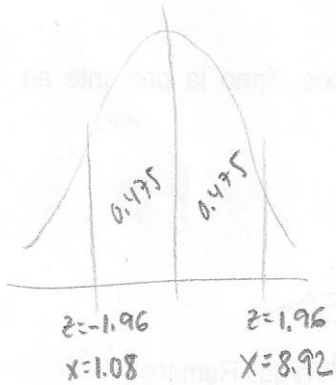
$z = \frac{x - \bar{x}}{s} = \frac{7 - 5}{2} = 1$

$p = 0.8413$ → $\% = 84.13$

a)



b)



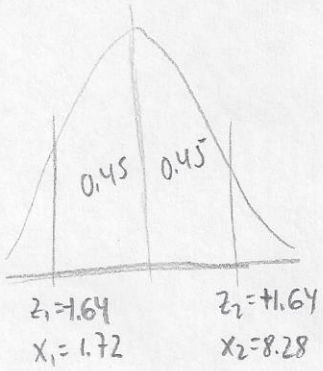
$-1.96 = \frac{x - 5}{2} \rightarrow -3.92 = x - 5$

$1.08 = x$

$1.96 = \frac{x - 5}{2} \rightarrow 3.92 = x - 5$

$8.92 = x$

c)



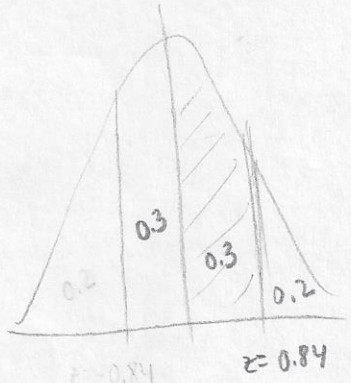
$$-1.64 = \frac{x_1 - 5}{2} \rightarrow -3.28 = x_1 - 5$$

$$1.72 = x_1$$

$$1.64 = \frac{x_2 - 5}{2} \rightarrow 3.28 = x_2 - 5$$

$$8.28 = x_2$$

d)



$$+0.84 = \frac{x - 5}{2} \rightarrow +1.68 = x - 5$$

$$6.68 = x$$