

(Final answers on both problems should have accuracy to 2 decimal places.)

1. (10pts) The frequency distribution of Roberto's golf scores on par 3 holes is given below.

- a) What is the mode score?
- b) What is the median score?
- c) What is the mean score?
- d) Find the relative frequencies.
- e) Draw a pie chart representing the data.

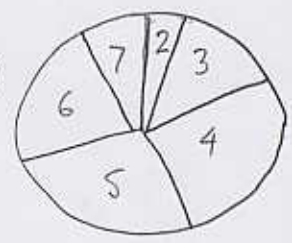
10 18 24 16 7
 2, 2, 2, 3, 3, 3, 4, 4, 4, 5, 5, 5, 6, 6, 6, 7, 7, 7
 Need 39th: 5
 40th: 5
 31st 39th 40th

Score	Frequency	Rel. Frequency	Angle
2	3	0.04	13.85°
3	10	0.13	46.15°
4	18	0.23	83.08°
5	24	0.31	110.77°
6	16	0.21	73.85°
7	7	0.09	32.31°

78 entries

Median is $\frac{5+5}{2} = 5$

c) $M = \frac{3 \cdot 2 + 10 \cdot 3 + 18 \cdot 4 + 24 \cdot 5 + 16 \cdot 6 + 7 \cdot 7}{78}$
 $= \frac{373}{78} \approx 4.78$



2. (10pts) On exam 3, my two 117 classes achieved scores summarized in the table below.

Do the following for your class only.

- a) Draw a bar graph for the data.
- b) Enter a representative value for each interval.
- c) Estimate the mean of data. Compare your estimate with the actual mean, found on the course webpage.
- d) Estimate the standard deviation of data.

Range	Freq. 11:00	Freq. 1:30	Rep. value
≥ 90	2	3	95
80-89	12	4	85
70-79	9	3	75
60-69	5	5	65
< 60	1	2	50
	29	17	

c) $M_1 = \frac{2 \cdot 95 + 12 \cdot 85 + 9 \cdot 75 + 5 \cdot 65 + 1 \cdot 50}{29} = \frac{2200}{29} \approx 77.93$

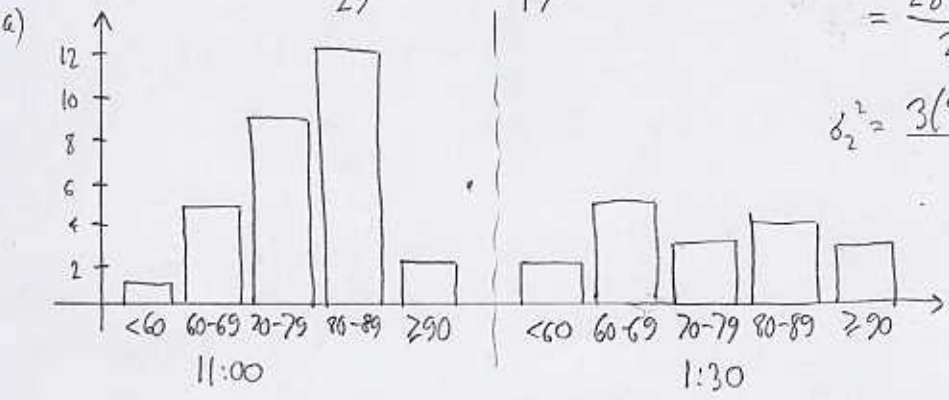
$M_2 = \frac{3 \cdot 95 + 4 \cdot 85 + 3 \cdot 75 + 5 \cdot 65 + 2 \cdot 50}{17} = \frac{1275}{17} \approx 75.1$

d) $\sigma_1^2 = \frac{2(95-M_1)^2 + 12(85-M_1)^2 + 9(75-M_1)^2 + 5(65-M_1)^2 + 1(50-M_1)^2}{29}$

$= \frac{2875.87}{29} = 99.17... \sigma_1 = \sqrt{99.17...} = 9.96$

$\sigma_2^2 = \frac{3(95-M_2)^2 + 4(85-M_2)^2 + 3(75-M_2)^2 + 5(65-M_2)^2 + 2(50-M_2)^2}{17}$

$= \frac{3350.7}{17} = 197.058 \sigma_2 = \sqrt{197.058} = 14.04$



d) Actual means: $M_1 = 76.2$
 $M_2 = 74.2$