

**PHYS 505 – Fall 2019****Homework 2****Prof. Vasileios Lempesis****Hand in: Tuesday 8<sup>th</sup> of October 2019**

1. A body slides down an inclined plane and we did the following ten measurements for the time of its motion.

Ten values of the time for a body to slide down an inclined plane										
Time (s)	0.64	0.64	0.59	0.58	0.70	0.61	0.68	0.55	0.57	0.63

Find the average value of the time, its error and quote the final result with the correct number of significant digits

2. In survey for the annual income of the passengers travelling in a flight we found the following data

Number of passengers	Annual Income in SAR
5	800,000
10	600,000
15	400,000
15	350,000
40	250,000
55	150,000
15	100,000

Find the mean (average value), the mode, the median and the standard deviation of the above income distribution.

3. A continuous probability distribution is given by:

$$f(x) = \begin{cases} \frac{2}{\sqrt{\pi}} \exp(-x^2) & 0 \leq x < \infty \\ 0 & \text{else} \end{cases}$$

Find the mean (average value), the mode, the median and the standard deviation of the above probability distribution.

For integrations you may use also online tools like

<https://www.integral-calculator.com/>

<https://www.wolframalpha.com/calculators/integral-calculator/>

For the error function you may use

<https://keisan.casio.com/exec/system/1180573449>