Stat 131 (Mathematical Statistics III)

Problem Set No. 4

INSTRUCTION: Answer the following as indicated. Follow the steps in testing hypothesis.

1. A random sample of 500 measurements on the length of stay in hospitals had sample mean 5.4 days and sample standard deviation 3.1 days. The PhilHealth hypothesizes that the average length of stay is in excess of 5 days. Do the data support this hypothesis?

2. An incumbent Philippine senator has filed a senate bill to reimpose denalty for heinous crimes. A political researcher surveyed independent random samples of 200 Diehard Duterte Supporters (DDS) and 200 non-DDS and found 123 DDS and 112 non-DDS strongly favoring the death penalty for heinous crimes.

   a. Is the data sufficient to conclude that majority of DDS is in favor of the death penalty for heinous crimes?

   b. The political researcher believes that the proportion of DDS strongly in favor of the death penalty for heinous crimes is greater than the proportion of non-DDS supporters strongly in favor of the death penalty for heinous crimes. Does this evidence provide statistical support for the researcher's belief?

3. A survey published in the American Journal of Sports Medicine reported the number of meters (m) per week swum by two groups of swimmers—those who competed exclusively in breaststroke and those who competed in the individual medley (which includes breaststroke). The number of meters per week practicing the breaststroke was recorded for each swimmer, and the summary statistics are given below. Is there sufficient evidence to indicate that the average number of meters per week spent practicing breaststroke is greater for exclusive breaststrokers than it is for those swimming individual medley?

Groups	n	$\bar{y}$	s
Exclusively Breaststroke	130	9017	7162
Individual Medley	80	5853	1961