

Answer on Question #55448 – Math – Statistics and Probability

Researchers at the Washington University School of Medicine randomly placed 480 rats into one of three chambers containing radio antennas. one group was exposed to digital cell phone radio waves the second to analog cell phone waves and the third group to no waves. two years later the rats were examined for signs of brain tumors. in June 2002 the scientist said that differences among the three groups were not statistically significant.

- a)** is this a study or an experiment? explain
- b)** explain in this context what "not statistically significant" means.
- c)** comment on the fact that this research was funded by Motorola, a manufacturer of cell phones.

Solution

If researchers at the Washington University School of Medicine randomly placed 480 rats into one of three chambers containing radio antennas and in June 2002 the scientist said that differences among the three groups were not statistically significant, then:

- a)** it is an experiment, because some statement was not proved.
- b)** "not statistically significant" means, that there was no significant influence of waves on rats.

The results are considered to be “statistically non-significant” if the analysis shows that differences as large as (or larger than) the observed differences would be expected to occur by chance more than one out of twenty times ($p \geq 0.05$). There are, however, two problems with this assumption. Firstly, the cut-off point of 5% is arbitrary. Secondly, “statistically non-significant” results might or might not be inconclusive.

- c)** The fact that this research was funded by Motorola, a manufacturer of cell phones tell us, that this experiment may be not correct. Because Motorola may do this research to advertise its products and such result of the research may increase their sales.