



Research Topic (1)

Title: SIS MODEL

Write research on:

Ordinary Differential Equations "ODE" is a tool to model different engineering and physical Let's apply one of these methods to solve a very important problem in the field of epidemics.

The model is called Susceptable, Infectious, Suspectable "SIS" model. Some infections, for example, those from the common cold and influenza, do not confer any long-lasting immunity. Such infections do not give immunity upon recovery from infection, and individuals become susceptible again. This is called SIS model.

The research should include:

- 1- Introduction about Ordinary differential equation
- 2- List different methods to solve ODE using separation of variables, and Linear ODE. (Do not derive them just list them).
- 3- Define the SIS model parameters.
- 4- Derive the SIS MODEL.
- 5- Solve the SIS MODEL.
- 5- Discuss how the reproduction number affects the number of infected people when time goes to infinity
- 6- Draw the number of infected people versus time for different values of the model parameters. Lable the graph axes and show the unit used.
- 7-Can the model describe the current COVID-19 spread?
- 8- Conclusion
- 9- Use appropriate references at least 5

NB:

The form of the research should follow the following rules:

- a. Writing using Microsoft Word.
- b. using Time New Roman font.
- c. 14 Font size for text and 16 Bold for the title.
- d. single space between the lines.
- e. Page margins are 2.5 cm from top, bottom, right and left.
- f. The number of pages is not less than 5 or The number of words is not less than 400.
- h. English language formulation should be correct and sound.
- i. Clarity of texts, pictures or drawings.

*With My Best Wishes,
Prof. Ali Elnaem.
Dr. M. Abdel-Aziz*