

General Education Learning Outcome – Mathematical Methods

Outcome

Demonstrate an analytical reasoning and logic skills by using mathematical methods and tools.

Subcomponents

- Identify mathematical properties that apply to a situation.
- Apply those mathematical properties appropriately to the situation in order to reach a conclusion.
- Evaluate that conclusion for correctness and/or effectiveness and develop alternative solutions if needed.

Sample Artifacts

- Estimate the height of the clock tower. Draw a diagram and label measurements. Calculate the height. Find the actual height and calculate your percent error. (Contemporary Math)
- Consider the reaction $\text{CO(g)} + \text{NH}_3\text{(g)} \rightleftharpoons \text{HCONH}_2\text{(g)}$ $K_C = 0.890$
If a reaction vessel initially contains CO and NH₃ in concentrations of 1.00M and 2.00 M, respectively, what will the concentration of HCONH₂ be at equilibrium? (Gen Chem II)
- a) What is an indifference curve and what are its properties? b) Illustrate and explain the idea of MRS using an indifference curve. What must be true all along the curve? c) How does one find the optimal bundle of two goods given a budget constraint? Show this in a graph and explain why it is the optimal bundle. d) How would your answer change if income decreases? Show the changes in the graph. e) Using an indifference curve and a budget line illustrate and explain why an indifference curve inside the optimal IC is not efficient. (Microeconomics)