

Determining the Interest Rate

1 Introduction

The following link from Rent-a-Center advertises a Maytag refrigerator for \$181.98 per month. How does the advertised payment plan compare to the actual cost of the fridge? The advertisement gives the size and number of loan payments, but the value of the interest rate being charged is unclear.

2 Objective

The goal of this activity is to use the Bisection Method to determine the interest rate (to within an error of 0.0001) being charged in order to purchase this refrigerator. Assume that the interest rate is compounded monthly. For simplicity, ignore any taxes or the \$15 promotion. How much would you have to pay to Rent-A-Center in the form of interest? Discuss how the Rent-a-Center payment plan would compare with simply saving \$181.98 per month until you can afford to buy the same refrigerator.

3 Additional Notes

1. The functions used when we first introduced various interest rate problems will be useful here.

4 Grading Criteria

This project is worth a total of 10 points:

- (3 points) Introduction and Discussion - Introduce the problem and explain how your algorithm/function works.
- (5 points) Algorithm and Implementation - The algorithm designed and implemented in Python solves the problem.
- (2 points) Neatness and Timeliness - Your write-up is neat, clear, and turned in on time. The assignment must be typed (as a Jupyter notebook) and completed by 11:59pm on October 28th.