

Compound Interest Problems and Redlining, etc.
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These are basic compound interest problems. I mention that the actual calculations used with amortization tables, etc. would be taught in a later course or courses.

1. **Redlining and Home Prices** For the past 50 years, median housing prices have grown on average 5.4% per year. The Baltimore Neighborhood Indicators Alliance (<https://bniajfi.org>) gives the median price of homes sold for the following Baltimore City neighborhoods in the year 2015.

Assuming 5.4% annual growth on median housing prices, what would the median price be in 5 years? In year 2045?

Median Price of Homes Sold	in 2015	in 5 years	in 2045
Govans	50,000		
Guilford	305,000		
Sandtown	12,550		

2. **Sub-prime mortgages** Many sub-prime mortgages have higher interest rates, sometimes the difference between a rate of 4.15% and 7.25%. Suppose a 15 year mortgage of \$120,000 is given at these two different rates of interest. Find the total amount of the loan in that amount of time if it is compounded

Monthly at 4.15% per year:

Monthly at 7.25% per year:

Continuously at 4.15%:

Continuously at 7.25%:

3. **Credit cards** Student1 has \$1000 balance in a credit card with 12.9% annual interest. Student2 has the same balance with a high-interest credit card of 21.9% annual interest.

How much will be accumulated on both students' credit card accounts if no payments are made and no finance charges are added in 4 years?

How long until the balance doubles for each student?