

Name: _____

MATH 100

Fall 2023

HW 8: Due 10/30

"I'm proud to pay taxes in the United States; the only thing is, I could be just as proud for half the money."

—Arthur Godfrey

Problem 1. (10pt) The CPI this year is 304.3. Last year, the CPI was 292.7.

- (a) What was the inflation rate from last year to this year?
- (b) Predict the current cost of a good that cost \$459.99 last year.
- (c) If the inflation rate in (a) was constant every year, what will be the percentage increase in the cost of goods in 100 years compared to this year?
- (d) Suppose that the current cost of a cup of coffee is \$3.50. If the inflation rate for the past 50 years was the rate computed in (a), what was the cost of a cup of coffee 50 years ago?

Problem 2. (10pt) The 2023 federal tax brackets are given below. The standard deduction for single filers for the year 2023 is \$13,850. Compute the federal taxes in 2023 for a single filer taking the standard deduction that made \$135,000 that year.

Tax Rate	Taxable Income
10%	Up to \$11,000
12%	\$11,001 – \$44,725
22%	\$44,726 – \$95,375
24%	\$95,376 – \$182,100
32%	\$182,101 – \$231,250
35%	\$231,251 – \$578,125
37%	\geq \$578,126

Problem 3. (10pt) You invest \$5,000 into an account that earns 11.3% simple annual interest.

- (a) How much will the account have after 5 years?
- (b) How much should you have invested to have the \$8,000 after 5 years?