

Math 105-20 Summer Term II
Test 1

Name: _____

For full credit, show all your work and explain your answers.

Equations:

Compound Interest:

$$F = P\left(1 + \frac{r}{n}\right)^{nt}$$

Simple Interest:

$$F = P + Prt$$

APY:

$$Y = \left(1 + \frac{r}{n}\right)^n - 1$$

1. (*25 points*) In 1980 the Federal Deficit was \$0.9 trillion dollars. In 2000 it was \$5.67 trillion dollars.

A) What percent of the 1980 deficit was the 2000 deficit?

B) How much did the deficit change from 1980 to 2000? What percent change does this represent?

2. (*25 points*) Suppose you invest \$5,000 at 8% compounded annually. What is the minimum number of years for which this principal must be invested in order to grow to \$10,000?

3. (*25 points*) In a certain year Blockbuster Video customers rented 880 million videos out of the 3.7 billion videos rented that year. What percent of the videos did Blockbuster customers rent? Round your answer to the nearest hundredth of a percent.

4. (*25 points*) The current price of a new Toyota RAV4 is \$24,300. What was the price of the same car 4 years earlier if the price was increasing by 3.6% annually?

5. (*25 points*) A student took a \$2,000 loan with 10% annual simple interest. What was the term of the loan (in months) if she had to repay \$2,150?

6. (*25 points*) The current balance of your credit card is \$2,000. You plan to pay off the entire account in full in 3 years. What will be the payment amount if you are being charged 12% annual interest compounded daily?

7. (*25 points*) Find the Annual Percentage Yield (APY) of an investment at 8% compounded quarterly. Round your answer to two decimal places when written as a percentage.

8. (*25 points*) John's investment of \$1,000 grew to \$2,388.20 in 11 years. What annual rate of interest did this investment earn? Round your answer to two decimal places when written as a percentage.