

Name: _____

Math 1030-06
Spring 2007

Practice Midterm 2

Directions: Please write as clearly as possible, show all your work, and box your answers. The formulas below are provided for your convenience.

Savings Plan Formula:

$$A = Pmt \times \left[\frac{\left(1 + \frac{APR}{n}\right)^{nY} - 1}{\left(\frac{APR}{n}\right)} \right]$$

Loan Payment Formula:

$$Pmt = \frac{P \times \left(\frac{APR}{n}\right)}{\left[1 - \left(1 + \frac{APR}{n}\right)^{-nY}\right]}$$

4. (12 points) You have a car loan of \$7,500 at a fixed APR of 5.8% for 3 years. Calculate your monthly payments and **next** calculate the total amount that you paid in interest over 3 years.
5. (8 points) You set up an IRA (individual retirement account) with an APR 7% at age 30. At the end of each month, you deposit \$100 in the account. How much money will you have in the account when you retire at the age of 60?
6. (8 points) You have \$20,000 to deposit into a savings account. Which out of the following options is your best choice for your savings account?
- (a) Quarterly compounding with an APR of 4.0%.
 - (b) Daily compounding with an APR of 3.9%.

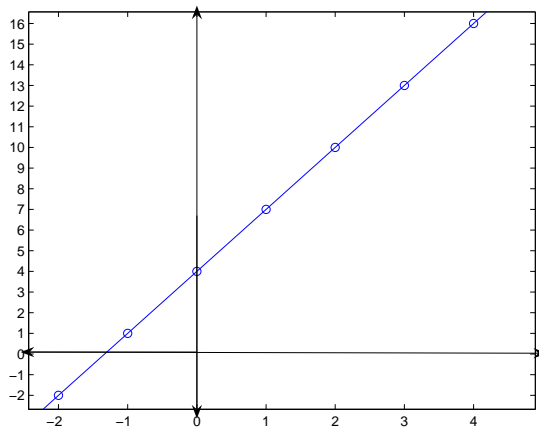
7. (6 points) Determine whether the following examples are exponential or linear growth (or decay).

(a) The price of gasoline is increasing by 2 cents per month.

(b) The price of my car is decreasing by 12% per year.

(c) The population of New Jersey is increasing by 2% per year.

8. The following graph is the plot of a line.



(a) (2 points) Label the x -axis (independent variable) and the y -axis (dependent variable) on the plot above.

(b) (2 points) Find the y -intercept of the graph, b .

(c) (2 points) Find the slope of the line m (i.e. the rate of change).

(d) (3 points) Write the equation for the line as a function, $y = f(x) = mx + b$.

9. (8 points) A savings account has an APR of 3.1% compounded quarterly. Find the APY (annual percentage yield) of this account.
10. (8 points) The half-life of aspirin in your blood stream is 3.1 hours. What percent does it decrease by per hour (i.e. what is the rate or decay)?
11. (8 points) Using the information in the previous question answer the following question. If you take 2 aspirin (650mg) at 8 o'clock in the morning, at what time should you take a second dose? (Assume that you take the second dose when your headache returns - when there is only 100mg left in your bloodstream.)