

MATH 130 WORKSHEET 1

- (1) Consider the sequence $u_0 = 5$ and $u_n = 1.1u_{n-1} + .5$. Find u_{100} and u_{200} .
- (2) Biff puts \$10,000 dollars into a savings account earning 2% interest annually, compounded monthly. He plans on depositing a fixed amount into the account every month. He would like the account to be worth \$25,000 in thirty years. How much should Biff deposit in the account every month? (Try to estimate the value to the nearest dollar.)
- (3) Sketch the graphs of the sequences and describe them as linear or non-linear and as increasing or decreasing.
 - (a) $u_0 = 5$ and $u_n = 4u_{n-1} + 2$.
 - (b) $u_0 = 2$ and $u_n = \frac{1}{2}u_{n-1}$.
 - (c) $u_0 = 3$ and $u_n = u_{n-1} + 7$.
- (4) Find explicit formulae for the following sequences:
 - (a) $u_0 = 5$ and $u_n = u_{n-1} + 6$.
 - (b) $u_0 = -1$ and $u_n = u_{n-1} - 7$.
- (5) Find the slope and y-intercept for each of the following lines:
 - (a) $y = 3x - 7$.
 - (b) $y = 6x + 2$.
 - (c) $y = 23x + 17$.
- (6) Biffarella takes out a \$20,000 loan at 9% interest. Her payments are \$500 a month. How long will it take her to pay off the loan and how much will she have paid in total?