



## Buying your first new car!



1) The value of a new car that costs \$18500 originally depreciates at a rate of 1.5% a month. The dealer offered a 48-month payment plan. What is the value of the car at the end of the 48 months?

a) Write an exponential function to show the car value:

F(x) = \_\_\_\_\_

b) Calculate the value of the car after 48 months: \_\_\_\_\_

2) Monthly payments on a car loan are calculated using the following exponential function:

$$A = R \frac{1 - \left(1 + \frac{i}{12}\right)^{-n}}{\frac{i}{12}}$$
, where  $A$  is the purchase price,  $R$  is the monthly payment,  $i$  is the yearly interest

rate, and  $n$  is the number of months you will make payments.

a) If the dealer charges a yearly interest of  $12\frac{1}{2}\%$  over 48 months, what will the monthly payment be? (Careful with the parentheses!) \_\_\_\_\_

b) How much will you pay for the car (total) if you accept the dealer's plan?

\_\_\_\_\_

c) Graph & print the equations from 1 a) and 2) in the same appropriate window

d) A "screen capture grade" will be happening soon!

Growth:

- a) Put 4 M&M's into the cup. Record as follows: (0, 4)
- b) Pour the candies onto a sheet of paper. Count the number of M's showing. Add twice this number of M&M's to the pile. Record the new total of M&M's. This constitutes one "year." (1, # M&M's).
- c) Return the pile of M&M's to the cup. Repeat step b until you don't have enough to add the appropriate amount.
- d) Collect data for the entire group.
  - a. After all data values are collected everyone stands
  - b. Each person states the number of candies they had initially. The data is entered into your calculator. (L1 = "year" and L2 = #M&M's)
  - c. Find out the least amount of "years" that were completed. Use this number for everyone. Bottom line, everyone must have the same number of "years."
  - d. Each person states the number of candies after one "year."
  - e. Continue until each person has stated their last "year."
- e) Create a scatterplot of the data
- f) Determine an algebraic model that fits the data

Decay:

1. Count and record the number of M&M's in your cup.
2. Put the M&M's into the cup and shake them around.
3. Pour out the M&M's onto your paper.
4. Remove any M&M's that do not land "M" side up.
5. Record the trial number and the number of M&M's remaining.
6. Put the remaining M&M's back in the container and shake again.
7. Repeat until no M&M's remain.
8. Put your data into lists.
9. Create a scatterplot of the data
10. Determine an algebraic model that fits the data.

