

3. [10 points] A boat's initial value is \$100,000; it loses 15% of its value each year. The boat's maintenance cost is \$500 the first year and increases by 10% annually.

In the following questions, your formulas should not be recursive.

- a. [2 points] Let  $B_n$  be the value of the boat  $n$  years after it was purchased. Find  $B_1$  and  $B_2$ .

- b. [3 points] Find a formula for  $B_n$ .

- c. [2 points] Let  $M_n$  be the total amount of money spent on the maintenance of the boat during the first  $n$  years. Find  $M_2$  and  $M_3$ .

- d. [3 points] Find a closed form formula for  $M_n$ .