NC Math 1B Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Unit 5 Lesson 1.5 Homework: Recursive Growth and Decay**

1. Ghost Lake is a popular site for fishermen, campers, and boaters. In recent years, a certain water plant has been growing on the lake at an alarming rate. The surface area of Ghost Lake is 25,000,000 square feet. At present, 1,000 square feet are covered by the plant. The Department of Natural Resources estimates that the area is doubling every month.

a. Complete the table below.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Number of Months | 0 | 1 | 2 | 3 | 4 | 5 |
| Area Covered in Square feet | 1000 |  |  |  |  |  |

b. Write a NEXT-NOW equation to represent the growth pattern of the plant on Ghost Lake.

(Don’t forget the start value)

c. How much of the lake’s surface will be covered with the water plant by the end of a year?

d. How many months will it take for the plant to completely cover the surface of the lake?

2. You buy a car for your 16th birthday. You paid $9436 for it. Each year the car is worth ¼ of its value.

Round your answers to two decimal places.

1. Complete the table below.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Number of Years | 0 | 1 | 2 | 3 | 4 | 5 |
| Value of the Car |  |  |  |  |  |  |

1. Write a NEXT-NOW equation to represent the depreciation of the car. (Don’t forget the start value)
2. How much will the car be worth after a decade (10 years)?
3. Will the car ever have a negative value? Use complete sentences to explain your answer.