Name: _____ **Unit 6:** Exponents & Exponential Functions

Date: _____ **Bell:** _____ **Homework 8:** Exponential Growth & Decay

**** This is a 2-page document! ****

Directions: Write the formula for each function below.

EXPONENTIAL GROWTH FUNCTION	EXPONENTIAL DECAY FUNCTION

Directions: Read each problem carefully, choose the correct model, then solve.

1. Annual sales for a fast food restaurant are $650,000 and are increasing at a rate of 4% per year. Use an exponential function to find the annual sales after 7 years.

2. The population of a town is 2500 and is decreasing at a rate of 3.5% per year. Use an exponential function to find the population of the town after 5 years.

3. Daniel's Print Shop purchased a new printer for $35,000. Each year it depreciates at a rate of 5%. Use an exponential function to find its approximate value after 8 years.

4. The population of a school is 800 students and is increasing at a rate of 2% per year. Use an exponential function to find the population of the school after 9 years.

5. Kathy plans to purchase a car that depreciates at a rate of 12% per year. The initial value of the car is $21,000. Use an exponential function to find the value of the car after 3 years.

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6. During a certain period of time, about 70 northern sea otters had an annual growth of 18%. Use an exponential function to find the number of sea otters after 4 years.

7. A population of fish starts at 8,000 and decreases by 6% per year. Use an exponential function to find the population of fish in 10 years.

8. Twenty years ago, Mr. Davis purchased his home for $160,000. Since then, the value of the home has increased about 5% per year. Use an exponential function to find the value of the home today.

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