

Algebra 1 – Unit 11
Model Parameter Interpretation

Name: _____

- 1) The population (P) of a small beach community in Florida can be found with the function $P(t) = 2500(1.017)^t$, where t is the number of years since 2012.
 - a. How can you interpret the parameter 2500 in this equation in terms of the population?

 - b. How can you interpret the parameter 1.017 in this equation in terms of the population?

 - c. According to this function, how many people live in this community in 2016?

- 2) The cost (C) of a 16-inch pizza from Napoli Pizzeria in Ithaca can be found with the function $C(t) = 13.56 + 1.99t$, where t represents the number of toppings on the pizza.
 - a. How can you interpret the parameter 13.56 in this equation in terms of the cost of the pizza?

 - b. How can you interpret the parameter 1.99 in this equation in terms of the cost of the pizza?

 - c. If Mr. Kirk ordered a pizza with 5 toppings, how much was he charged?

- 3) The value (V) of a car can be found with the function $V(t) = 27,550(0.85)^t$, where t represents the number of years after the car has been purchased.
 - a. How can you interpret the parameter 0.85 in this equation in terms of the value of the car?

 - b. How can you interpret the parameter 27,550 in this equation in terms of the value of the car?

 - c. How long after the car has been purchased will it be worth \$2,406 (Hint: use the table)?

- 4) The amount of profit (P) generated by a candle-maker can be found with the function $P(c) = 25c - 1500$ where c represents the number of candles she sells.
- How can you interpret the slope of this function in terms of the candle-maker's profit?
 - How can you interpret the y-intercept of this function in terms of the candle-maker's profit?
 - How many candles will this company have to sell in order to break even (have a profit of \$0)?
- 5) Dean invested \$300 in a savings account at a 1.2% annual interest rate. Assuming he makes no additional deposits or withdrawals on the account, write a function that gives the amount of money in the account (A) in terms of the number of years (t). Then use that equation to determine how much money the account will have in it in 20 years.

- 6) Patricia and Patrick were given the information shown below about the bacteria growing in a Petri dish in their biology class

Hours, x	1	2	3	4	5	6	7
Bacteria, $B(x)$	220	280	350	440	550	690	860

Patricia wants to model this information with a linear function. Patrick wants to use an exponential function. Which model is the better choice? Explain your answer.