

first/last name: \_\_\_\_\_ Period: \_\_\_\_\_

## Practice

1. Decide whether each sequence below is *arithmetic*, *geometric*, or *neither*.

a) -2, 2, 6, 10, ..... \_\_\_\_\_

b) 2, 5, 16, ..... \_\_\_\_\_

c) 4, 8, 16, 32, ..... \_\_\_\_\_

2. For the sequence: -6, -3, 0, 3, ..... Write the following:

a) An *explicit* formula using " $t_n =$ " using either zero or first term format: \_\_\_\_\_ [3 marks]

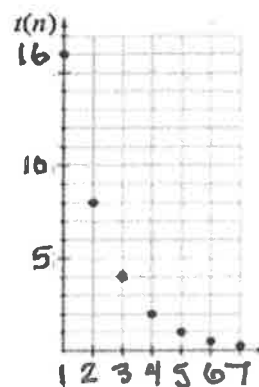
b) Find the 66<sup>th</sup> term of the sequence using your *explicit* formula. *show work*. [2 marks]

3. David Bowie wrote the equation  $t(n) = 20 + 4n$  for a sequence he was thinking about. Is it possible that 928 is part of his sequence? *yes or no? Explain/show why or why not using the formula.* [3 marks]

4. A sequence is shown in the graph.

a) Write an explicit formula. \_\_\_\_\_ [3 marks]

b) Find  $t_8$ , and round it to 4 decimal places. [1 mark]



5. Complete the table. Then Write a function  $y = ab^x$  that represents the graph shown. *Show work for full credit.* [3 marks]

x	y
0	3
1	9.3
2	28.83
3	

6. **Complete the table** to the right. Also, write an exponential function in the form  $y = ab^x$ . [3 marks]

$x$	$Y$
0	25
1	
2	49
3	

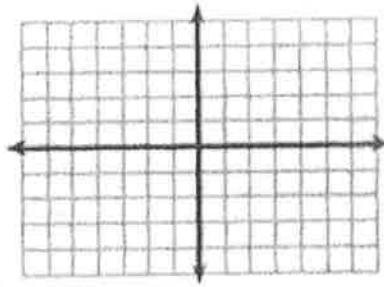
$y =$

7. A new car is purchased for \$32,000. The car will lose 20% of its value every year.
- a. **Write** an exponential function in the form,  $y = ab^x$  to model the situation.
- b. **Calculate** the value of the car after 10 years. [3 marks]

8. The population of rare yellow-green ducks in a town called Neugene is 750. Their population is growing at a rate of 8% a year.

**Write and use** an exponential function in the form,  $y = ab^x$ , to calculate this duck population in 14 years. *show work and round answer to 2 decimal places.* [3 marks]

9. Sketch a graph with a domain of  $-2 \leq x \leq 4$  and a range of  $0 \leq y \leq 3$



10. Use your graphing calculator to help determine the domain and range of the following function:

$$f(x) = x^2 - 5$$

11. Factor each expression completely:

$$5n^2 - 20$$

$$8x^3 + 19x^2 + 6x$$

12. Simplify each. (there should be no negative exponents in your answer)

$$(y^3)^4$$

$$n^4 \cdot n^5$$

$$x^3 \cdot x^{-6}$$

$$(2n^4)^3$$

$$\frac{2x^2y^8}{8x^5y^3}$$