

9A Arithmetic Sequences

Name: _____ Per: _____

SHOW YOUR WORK. WORK IN PENCIL

1. Find each value for the following. Do not use decimals.

a. $3^3 =$ b. $3^2 =$ c. $3^1 =$ d. $3^0 =$ e. $3^{-1} =$ f. $3^{-2} =$

2. Find the value of the function given. Use **function notation** to give your answers.

Example: $f(x) = 2x$; find $f(1), f(2), f(3)$

$f(1) = 2, f(2) = 4, \text{ and } f(3) = 6$

b. $f(x) = x^2 + 5$; find $f(1), f(2), f(3)$

$f(1) = \underline{\hspace{2cm}}, f(2) = \underline{\hspace{2cm}}, \text{ and } f(3) = \underline{\hspace{2cm}}$

a. $f(x) = 2^x$; find $f(1), f(2), f(3)$

c. $f(x) = 2(x - 1) + 3$; find $f(1), f(2), f(3)$

3. Complete each table. **State the “d” (common difference)** that shows how to find the next term. Write the **recursive equation** to find the next term and **explicit equation** to find any term. Find the 100th term..

a.

Term	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th
Value	2	4	6	8	10			

d _____ Recursive Eq: _____ Explicit Eq: _____ 100th term: _____

b.

Term	0	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th
Value	52	49	46	43	40			

d _____ Recursive Eq: _____ Explicit Eq: _____ 100th term: _____

c.

Term	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th
Value	-1	-6	-11	-16				

d _____ Recursive Eq: _____ Explicit Eq: _____ 100th term: _____

Given a term from an arithmetic sequence and the common difference, write the **explicit & recursive** equations.

4. $f(1) = 28, d = 10$

a. Rec. Equation: _____

b. Exp. Equation: _____

5. $f(2) = 35, d = 4$

a. Rec. Equation: _____

b. Exp. Equation: _____

6. $f(1) = 39, d = -5$

a. Rec. Equation: _____

b. Exp. Equation: _____

7. $f(0) = -26, d = 200$

a. Rec. Equation: _____

b. Exp. Equation: _____

Given the following, make a table (at least **4 values**) OR graph the situation with **simple** interest.

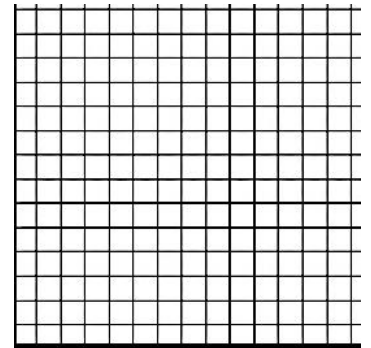
8. Luke has \$100 to put in the bank at a 15% simple annual interest rate.

- a. Complete the table. Find the recursive equation: _____
- b. How much **interest only** will he make in the first year? _____
- c. How much **total money** will he have in 1 year? _____
- d. How did you figure the total money? _____

- e. Write an equation to determine the amount of money in the bank at any time. _____

9. Coulsen put \$250 in the bank at a 10% simple annual interest rate.

- a. How much total **interest** will he make in 1 year? _____
- b. How much total **money** will he have in 1 year? _____
- c. How much **interest** will he make only in year 2? _____
- d. How much **total money** will he have at the end of year 2? _____
- e. Write an equation to determine the total amount of money in the bank at any time. Rec: _____
- f. Graph the amount of money in the bank.



10. Jessica has \$500 to put in the bank at an 8% annual **SIMPLE** interest rate.

- a. Complete the table.
- b. How much will she earn in **interest** in year 1? _____
- c. How much **total money** will she have in 1 year? _____
- d. How much will she earn in **interest** make in year 4? _____
- e. Write an equation to show the amount of money at any time.
Explicit: _____ Recursive: _____
- f. How much money will she have in year 10? _____

11. Katrina takes out a \$300 loan at a 20% annual **SIMPLE interest** rate.

- a. Write an equation to show the balance of the debt in any year. _____
- b. How much will he owe in **just interest** after 1 year? _____
- c. If she never makes a payment, how much money will she owe after five years? _____
- d. Graph the situation.

