8A Arithmetic Sequences

Name:

Per:

Due Date: January 24th / January 25th SHOW YOUR WORK. WORK IN PENCIL

1. Find each value for the following. Do not use decimals. d. $3^0 =$ e. $3^{-1} =$ f. $3^{-2} =$ a. $3^3 =$ b. $3^2 =$ c. $3^1 =$

2. Find the value of the function given. Use **function notation** to give your answers. b. $f(x) = x^2 - 25$; find f(1), f(2), and **Example:** find x when $f(x) = \pm 5$ f(x) = 2x; find f(1), f(2), f(3)f(1) = 2, f(2) = 4, and f(3) = 6a. $f(x) = 2^x$; 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 **<u>Recursive Equation</u>** (to find the next term) and **<u>Explicit Equation</u>** (to find any term). Find the 100th term.

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Term <i>x</i>	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th
Value $f(x)$	2	4	6	8	10			
Com dRecursive Eq:					olicit Eq:	100 th term:		
Term <i>x</i>	0	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th
Value $f(x)$	52	49	46	43	40			
Com d	Recursi	ve Eq:		Exp	olicit Eq:	100 th term:		
Term <i>x</i>	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th
Value $f(x)$	-1	-6	-11	-16				
Value $f(x)$ Com d	_ −1 _ Recurs	—6 ive Eq:	-11	Exj	olicit Eq:			100 th term:
Value $f(x)$ Com d	_ −1 _ Recurs	—6 ive Eq:	-11	16 Exj	plicit Eq:			100 th term:
Value $f(x)$ Com dven a term from	│ −1 _ Recurs an arithr	ive Eq:	ence and co	-16 Exj mmon dif	blicit Eq:	vrite the ex	plicit & re	_ 100 th term:_
Value $f(x)$ Com d ven a term from . $f(1) = 28, C$	_ Recurs _ Recurs an arithr ommon I	—6 ive Eq: netic seque	ence and co = 10	Exj	plicit Eq: ference, w 5. f(2) =	write the \underline{ex} 35, $d = 4$	<u>plicit & re</u> 4	_ 100 th term:_ ecursive equat
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Value $f(x)$ Com d Zen a term from f(1) = 28, C a. Recursive b. Explicit I f(1) = 39, d	$\begin{array}{ } -1 \\ \hline \\ Recurs \\ an arithmomory \\ ommon I \\ e Equatio \\ Equation: \\ = -5 \end{array}$	6 ive Eq: netic seque Difference n:	ence and co = 10	Exj mmon difi 	plicit Eq: ference , w 5. $f(2) =$ a. R b. E 7. $f(0) =$	write the $ex = 35$, $d = 4$ Recursive E Explicit Equ -26, $d = 4$	plicit & re 4 2quation: _ 1ation: 200	_ 100 th term:_ ecursive equat
Value $f(x)$ Com d Com d ven a term from f(1) = 28, C a. Recursive b. Explicit I f(1) = 39, d a. Recursive	$\begin{array}{ } -1 \\ \hline -1 \\ \hline -1 \\ \hline -2 \\ \hline -2$	-6 ive Eq: netic seque Difference n: n:	ence and co = 10	Exj mmon difi 	plicit Eq: ference , w 5. $f(2) =$ a. R b. E 7. $f(0) =$ a. R	write the <u>ex</u> 35, d = 4 Recursive E Explicit Equ -26, d = Recursive E	plicit & re 4 2quation: 1ation: 200 2quation:	_ 100 th term:_ ecursive equat

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

- Luke has \$200 to put in the bank at a 15% simple annual interest rate. 8.
 - a. How much money will he make in interest EACH year?
 - b. What is the rate of change?
 - d. What is the y-intercept?
 - e. Complete the table
 - f. How much total money will he have in 1 year?
 - g. Write an equation to determine the amount of money in the bank at any time.
- 9. Carl put \$250 in the bank at a 10% simple annual interest rate.
 - a. How much money will he make in just interest EACH year?
 - b. Write the recursive equation _____
 - c. What is the y-intercept?
 - d. How much **total money** will he have in 1 year?
 - e. How much in just **interest** will he make in year 2?
 - How much **total money** will he have at the end of year 2? f.
 - Graph the amount of money in the bank. Make sure you label the scale the axes. g.
 - h. Write the explicit equation to determine the total amount of money in the bank at any time.
- 10. Jessica has \$500 to put in the bank at an 8% annual SIMPLE interest rate.
 - a. Complete the table.
- Shorthand Pattern F(n)п b. How much will she earn in **interest** in year 1? _____ c. How much total money will she have after 1 year? d. How much **interest** will she earn in year 4? Write TWO equations. Explicit: ______ Recursive: _____ e. Find f(10). _____ Does that it mean? _____ f. 11. Katrina takes out a \$300 loan at a 20% annual SIMPLE interest rate. She agrees to not make ANY payments, but will pay off the loan in five years. a. How much will she owe in **just interest** after 1 year? _____ What is the slope? _____ b. Write a recursive equation. _____ Write an explicit equation. _____
 - c. If she never makes a payment, how much money will she owe after five years?

n	Pattern	F(n)	Shorthand

F(n)



Shorthand

- c. Write the recursive equation:

Pattern