Name: $\qquad$
$\qquad$ Period: $\qquad$

## Review

Use a pencil and highlight your answers. Show your work and justify your reasoning.

1. The Institute of American Film History is creating a new award for the movie that had the greatest impact on American society. Napoleon Dynamite has 15,000 nominations and earns 750 more nominations per month. Twilight has 7,000 nominations and earns 1,250 more nominations per month.

## Let $\boldsymbol{m} \rightarrow$ \# months

## $N(m)=$ the total number of nominations for Napoleon Dynamite

$\boldsymbol{T}(m)=$ the total number of nominations for Twilight
a) Write an explicit function for each movie to represent the total number of nominations.

Napoleon Dynamite:

Twilight:
c) Algebraically solve the system of equations.
d) Explain what the solution means in the context of the problem.
f) The Institute of American Film History will present the award in 18 months. Which of the two movies will win the award? Explain your answer.


Given each recursive function, determine the explicit function.

| 2. $f(1)=18 ; f(n)=f(n-1)+7$ | 3. $f(0)=15 ; f(n)=f(n-1)-9$ | 4. $f(1)=-9 ; f(n)=f(n-1)+12$ |
| :--- | :--- | :--- |
| $5 . f(1)=20 ; f(n)=f(n-1)-2$ | $6 . f(1)=-4 ; f(n)=f(n-1)-11$ | $7 . f(1)=2.5 ; f(n)=f(n-1)+3$ |
|  |  |  |

Given each explicit function, determine the recursive function.
8. $f(n)=15+7(n-1)$
9. $f(n)=8-2 n$
10. $f(n)=-2+5(n-1)$

Each of the tables below represents an ARITHMETIC sequence. Find the missing terms in the sequence.
Be sure to show the work for how your determined the constant rate.
11.

| $\mathbf{x}$ | y |
| :---: | :---: |
| 1 | 12 |
| 2 |  |
| 3 |  |
| 4 |  |
| 5 | 40 |

12. 

| $x$ | $y$ |
| :---: | :---: |
| 1 |  |
| 2 | 100 |
| 3 |  |
| 4 |  |
| 5 | 73 |

13. 

| $x$ | $y$ |
| :---: | :---: |
| 1 |  |
| 2 | 52 |
| 3 |  |
| 4 | 85 |
| 5 |  |

Fill in the next two terms. Then write the recursive and explicit functions for each sequence. Identify the indicated term.
14. $11,28,45,62$, $\qquad$ , ...

Recursive formula
Explicit formula

What is the $7^{\text {th }}$ term?
15. $27,18,9,0$, $\qquad$ , $\qquad$ , ...

Recursive formula Explicit formula

What is the $15^{\text {th }}$ term?

