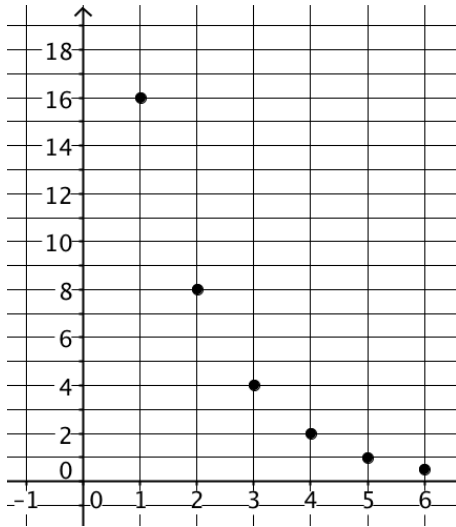


CH.4, L4 – LINEAR VS. EXPONENTIAL EXPLICIT FUNCTIONS

Objective: Given an arithmetic or geometric sequence or function, I will identify the explicit formula by evaluating the function for different terms in the sequence or input values.

Think About it: Write the explicit and recursive formulas for the sequence shown in the graph below.





CFS:

1. Table is created if not given
2. Table or sequence shows the function is linear or exponential
3. Explicit functions are in linear or exponential form

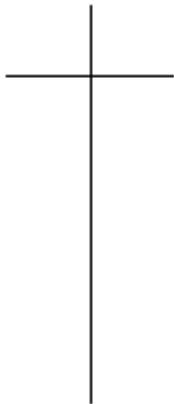
Partner Practice:

1. For each explicit function below, create a table of values that define the first five numbers in the sequence.

<p>a. $f(x) = 10x - 2$</p> <div style="text-align: center; margin-top: 20px;">  </div>	<p>b. $g(x) = \frac{3}{2}(2)^x$</p> <div style="text-align: center; margin-top: 20px;">  </div>
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2. For the functions in question 1, explain if each function represents a linear or exponential relationship and justify your answer.

3. Given the explicit function defined below, determine the value of $h(5)$. Explain if this explicit function represents a linear or exponential relationship.

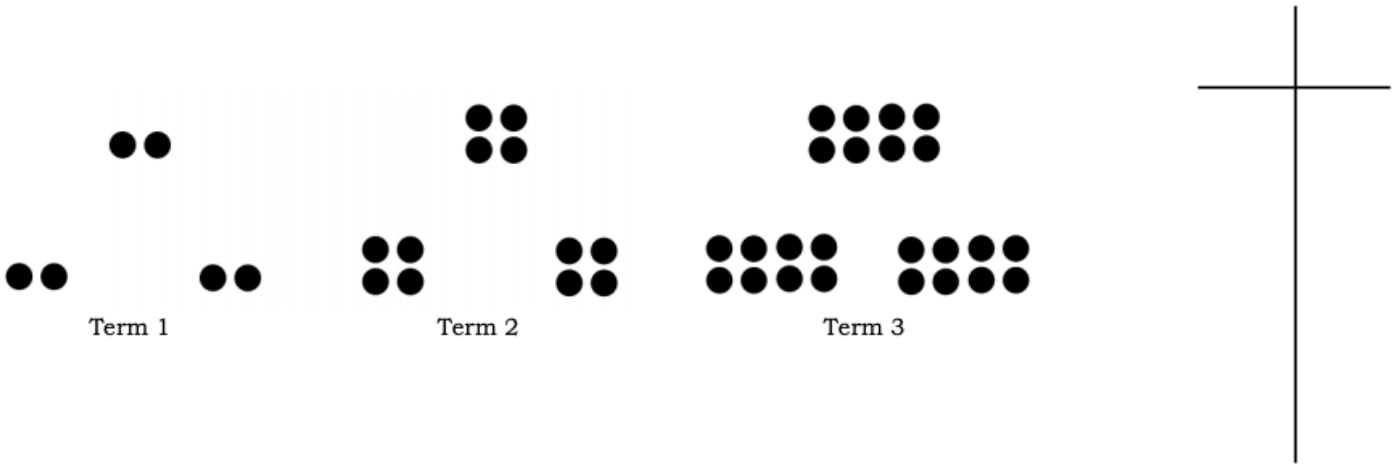


$$h(x) = 2.75x + 5.25$$

CFS:

1. Table is created if not given
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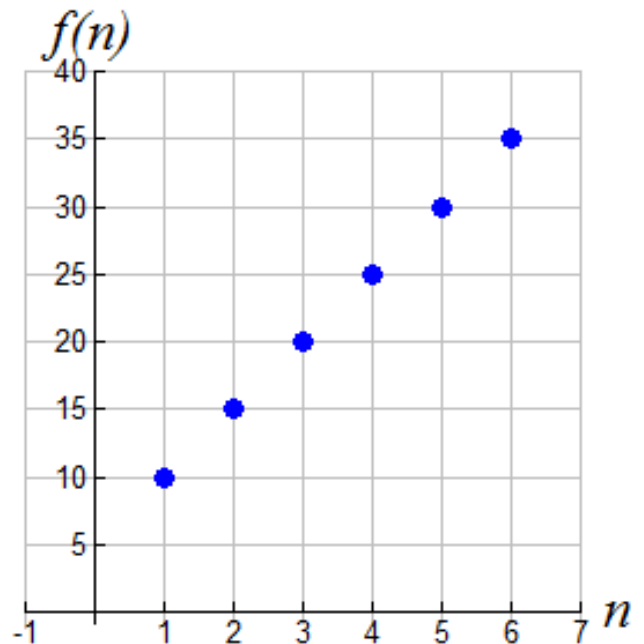
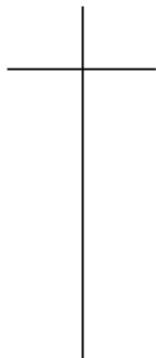
4. The diagram below shows the number of dots after every term where the first pattern represents the number of dots for term 1. Write an explicit function that could be used to describe the number of dots, $a(n)$, after n terms?



5. Write an explicit function that accurately represents the table below.

$f(n)$	625	125	25	5	1
n	1	2	3	4	5

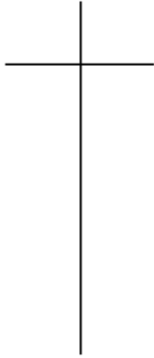
6. Write an explicit function that could be used to define the relationship in the graph.



CFS:

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7. Josh is working in a lab and studying growing bacteria. At the first hour, there were 20 cells of bacteria. After two hours, the bacteria had increased to 30 cells. At the third hour, there were 45 cells. Write an explicit function that could be used to model the growth and prove it is correct. Explain if this is linear or exponential growth and why.



8. Explain how you can tell if an explicit function represents a linear or exponential relationship by only looking at the structure of the function. How does this reinforce what you know about linear and exponential functions?

9. Given the two functions below, create a table for integer values of x on the interval $1 \leq x \leq 5$. Use your table to write an explicit function for each function given.

<p>a. $f(1) = 12, f(x) = f(x - 1) - 3$</p> <div style="text-align: center; margin-top: 20px;"> </div>	<p>b. $g(1) = 1, g(x) = \frac{1}{2}g(x - 1)$</p> <div style="text-align: center; margin-top: 20px;"> </div>
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CFS:

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3. Explicit functions are in linear or exponential form

10. Explain how you were able to write the explicit function from a recursive function.

CFS:

1. Table is created if not given
2. Table or sequence shows the function is linear or exponential
3. Explicit functions are in linear or exponential form