

6.2 Recursive Formulas for Sequences

PRACTICE

Directions: 1-3: Choose the best recursive formula for the following sequence.

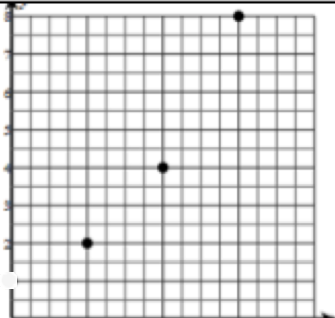
1) 40, 32, 24, 16 a) $G(n) = G(n-1) \times 8$ b) $G(n) = G(n-1) + 8$ c) $G(n) = G(n-1) - 8$ d) $G(n) = G(n-1) \times -8$	2) -3, -6, -12, -24 a) $h_n = h \times -2$ b) $h_n = h - 2$ c) $h_{n-1} = h_n \times 2$ d) $h_n = h_{n-1} \times 2$	3) 1, 1, 2, 3, 5, 8, 13 a) $b_n = b_{n-1} + b_n$ b) $b_n = b_{n-2} + b_{n-1}$ c) $b_n = b_{n+1} + b_{n+2}$ d) $b_n = b_n + b_n$
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Directions: 4-5: Consider the following graph as a sequence plotted by (n, B(n)).

4)
a) Is this an arithmetic or geometric sequence? How do you know?
Geometric because it has an exponential relationship.

b) What is the recursive formula for this sequence?
 $B(n) = B(n-1) \times 2; B(1) = 2$

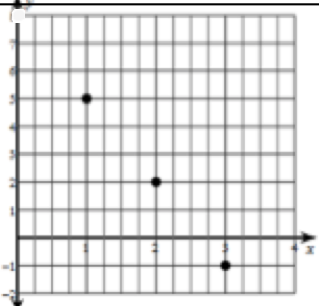
c) What are the next three terms?
2, 4, 8, **16, 32, 64**



5)
a) Is this an arithmetic or geometric sequence? How do you know?
Its arithmetic because its graph shows a linear relationship

b) What is the recursive formula for this sequence?
 $B(n) = B(n-1) - 3; B(1) = 5$

c) What are the next three terms?
5, 2, -1, **-4, -7, -10**



Directions: 6-10: Use the sequence to answer each of the questions.

6) 4, 15, 26, 37 a) What are the next three terms? 48, 59, 70 b) What is the recursive formula for this sequence? $H(n) = H(n-1) + 11; H(1) = 4$ c) Is the sequence geometric or arithmetic? Why? Its arithmetic because there is constant difference of 11. d) Describe what the graph will look like using complete sentences. It will be a linear relationship, that goes up to the right.	7) 98, 89, 80, 71 a) What are the next three terms? 62, 53, 44 b) What is the recursive formula for this sequence? $A_n = A_{n-1} - 9; A_1 = 98$ c) Is the sequence geometric or arithmetic? Why? Its arithmetic because there is a constant difference of -9. d) Describe what the graph will look like using complete sentences. It will be a linear relationship, that goes down to the right.	8) 200, 100, 50, 25 a) What are the next three terms? $\frac{25}{2}, \frac{25}{4}, \frac{25}{8}$ or 12.5, 6.25, 3.125 b) What is the recursive formula for this sequence? $G(n) = G(n-1) \div 2; G(1) = 200$ c) Is the sequence geometric or arithmetic? Why? This one is geometric because it has a common multiplier of 1/2. d) Describe what the graph will look like using complete sentences. The graph will be an exponential curve that goes down to the right.
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Alg 6.2 Practice Answers.notebook

<p>9) 1.25, 2.75, 4.25, 5.75 4.25, 5.75</p> <p>a) What are the next three terms? 7.25, 8.75, 10.25</p> <p>b) What is the recursive formula for this sequence? $C_n = C_{n-1} + 1.5 ; C_1 = 1.25$</p> <p>c) Is the sequence geometric or arithmetic? Why? This is going to be arithmetic because there is a constant difference of 1.5.</p> <p>d) Describe what the graph will look like using complete sentences. The graph will be linear, and will go up to the right.</p>	<p>10) -5, -15, -45, -135</p> <p>a) What are the next three terms? -405, -1215, -3645</p> <p>b) What is the recursive formula for this sequence? $R(n) = R(n-1) \times 3 ; R(1) = -5$</p> <p>c) Is the sequence geometric or arithmetic? Why? This will be geometric because it has a constant multiplier of 3.</p> <p>d) Describe what the graph will look like using complete sentences. It is an exponential curve that goes down to the right.</p>
<p>Directions: Solve the equation. Put your solution into set notation.</p>	<p>Circle all the ordered pairs (x, y) that are solutions to the given equation.</p>
<p>11) $-1 = \frac{r-1}{2} - 5$</p> <p>$+5 \quad +5$</p> <p>$(2) 4 = \frac{r-1}{2} (2)$</p> <p>$8 = r-1$ $+1 \quad +1$ $9 = r$</p> <p>$\{9\}$</p>	<p>12) $7y - 2x = -1$</p> <p>$7(-8) - 2(-1) = -1$ } $7(1) - 2(4) = -1$ $7(3) - 2(1) = -1$ } $-56 + 2 = -1$ } $7 - 8 = -1$ $21 - 2 = -1$ } $-54 \neq -1$ } $7 - 8 = -1$ $-1 = -1$ } $-54 \neq -1$ } $-1 = -1$</p> <p>$(11, 3)$ $(0, 1)$ $(1, 8)$ $(-5, 1)$ $(4, 1)$</p> <p>$7(1) - 2(0) = -1$ } $7(1) - 2(-1) = -1$ $7 - 0 \neq -1$ } $7 + 2 \neq -1$ $7 \neq -1$ } $17 \neq -1$</p>
<p>Directions: Find the product.</p>	<p>Directions: Solve each inequality. Express the solution graphically and in set notation.</p>
<p>13) $(3k - 1)(3k^2 - 11k - 8)$</p> <p>$9k^3 - 33k^2 - 24k - 3k^2 + 11k + 8$</p> <p>$9k^3 - 36k^2 - 13k + 8$</p>	<p>14) $92 > -4(x - 9)$</p> <p>$92 \quad -4x + 36$ $-36 \quad -36$</p> <p>$56 > -4x$ $-4 \quad -4$</p> <p>$-14 < x$</p> <p>$\{x \text{ real} \mid x > -14\}$</p> <p>$\leftarrow \begin{array}{c} \\ -15 \end{array} \begin{array}{c} \textcircled{+} \\ -14 \end{array} \begin{array}{c} \\ -13 \end{array} \rightarrow$</p>