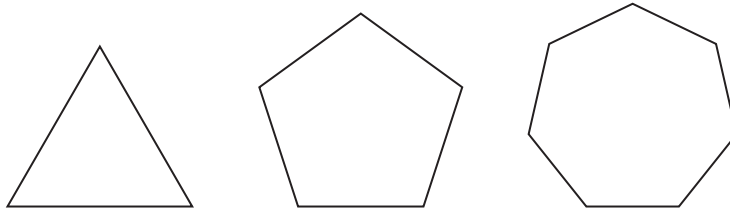


End of Topic Test Form A

Name _____ Date _____

1. Consider the sequence shown.



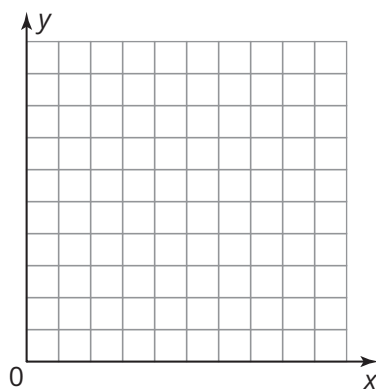
- a. Describe the pattern.
- b. Draw the next two figures of the pattern.
- c. Write a numeric sequence to represent the first 5 figures.
- d. Write an explicit formula for this sequence.
- e. Write a recursive formula for this sequence.
- f. Determine the number of sides of the 10th figure in the pattern.
- g. Determine the number of sides of the 100th figure in the pattern.

- 2.** Write the first 5 terms of each sequence.
- a.** an arithmetic sequence with a common difference of -0.4 and a first term of 0.7

 - b.** a geometric sequence with a common ratio of 3 and a first term of 1
- 3.** Identify each sequence as arithmetic or geometric. Then determine the common difference or common ratio for each sequence.
- a.** $40, 8, 1.6, 0.32, 0.064$

 - b.** $4, -5, -14, -23, -32$
- 4.** Determine the 50th term in the sequence defined by $a_n = -11 + 5(n - 1)$.
- 5.** Determine the 7th term in the sequence defined by $g_n = 2 \cdot \left(\frac{1}{2}\right)^{n-1}$.

6. Graph the ordered pairs for the sequence given by the formula $g_n = 4 \cdot 2^{n-1}$



7. For each sequence, write an explicit formula.

a. 1, -10, 100, -1,000, 10,000

b. 10.2, 2.2, -5.8, -13.8, -21.8

8. For each sequence, write a recursive formula.

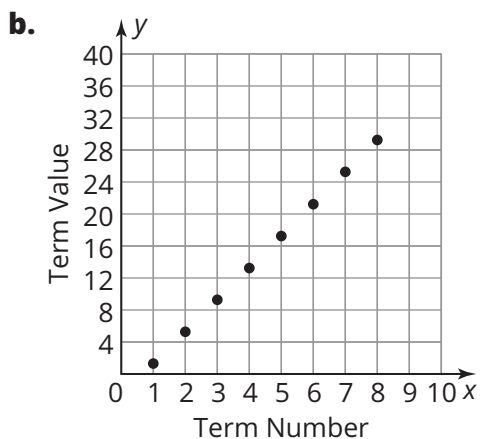
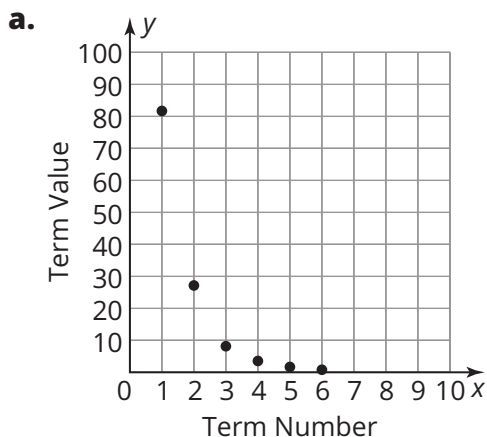
a. $\frac{2}{5}, \frac{6}{5}, \frac{18}{5}, \frac{54}{5}, \frac{162}{5}$

b. -25, -12, 1, 14, 27

9. Determine the 6th term in the sequence defined by $g_n = 4 \cdot 0.1^{n-1}$.

- 10.** Determine the 25th term in the sequence defined by $a_n = 8 + 2(n - 1)$.
- 11.** In her first week of gym training, Consuela can do 25 sit-ups per minute. During week two, she can do 29 sit-ups. By week three, she is up to 33 sit-ups.
- a.** If this pattern continues, represent the number of sit-ups she does per minute for the first 5 weeks of training as a numeric sequence.
- b.** Represent the sequence using a table of values.
- c.** Describe the domain and range of the sequence.

- 12.** Tell whether each graph represents an arithmetic sequence or a geometric sequence. Explain your reasoning.

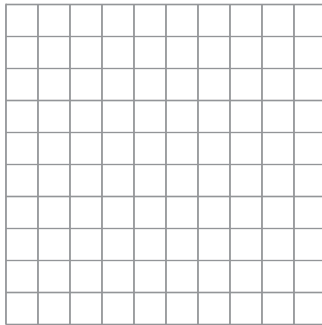


- 13.** For each sequence, write a recursive formula. Then determine the unknown term in the sequence.

a. $-\frac{1}{4}, -\frac{1}{2}, \text{_____}, -1, -\frac{5}{4}$

b. $-4, \text{_____}, -400, 4,000, -40,000$

- 14.** Graph the ordered pairs for the sequence given by the formula $a_n = 2 + 4(n - 1)$.



- 15.** When it is first purchased, a tree sapling measures 3 centimeters tall. Every month thereafter, the sapling doubles in size.
- a.** Represent the height of the sapling in centimeters for the first 5 months as a numeric sequence.
- b.** Predict the height of the sapling after 8 months. Explain your reasoning.