

HW 3.13

p. 187 2 – 20 even



Write the first six terms of the sequence.

2. $a_n = n + 4$

$$a_1 = 1 + 4 = 5$$

$$a_2 = 2 + 4 = 6$$

$$a_3 = 3 + 4 = 7$$

$$a_4 = 4 + 4 = 8$$

$$a_5 = 5 + 4 = 9$$

$$a_6 = 6 + 4 = 10$$

4. $a_n = n^2 - 2$

$$a_1 = (1)^2 - 2 = 1 - 2 = -1$$

$$a_2 = (2)^2 - 2 = 4 - 2 = 2$$

$$a_3 = (3)^2 - 2 = 9 - 2 = 7$$

$$a_4 = (4)^2 - 2 = 16 - 2 = 14$$

$$a_5 = (5)^2 - 2 = 25 - 2 = 23$$

$$a_6 = (6)^2 - 2 = 36 - 2 = 34$$



Write the first six terms of the sequence.

$$6. \quad a_n = -1^n$$

$$a_1 = (-1)^1 = -1$$

$$a_2 = (-1)^2 = (-1)(-1) = 1$$

$$a_3 = (-1)^3 = (-1)(-1)(-1) = -1$$

$$a_4 = (-1)^4 = (-1)(-1)(-1)(-1) = 1$$

$$a_5 = (-1)^5 = (-1)(-1)(-1)(-1)(-1) = -1$$

$$a_6 = (-1)^6 = (-1)(-1)(-1)(-1)(-1)(-1) = 1$$

$$8. \quad a_n = \frac{2}{n}$$

$$a_1 = \frac{2}{1} = 2 \quad a_2 = \frac{2}{2} = 1$$

$$a_3 = \frac{2}{3} \quad a_4 = \frac{2}{4} = \frac{1}{2}$$

$$a_5 = \frac{2}{5} \quad a_6 = \frac{2}{6} = \frac{1}{3}$$



For the sequence, describe the pattern, write the next term, and write a rule for the n th term.

10. 4, 6, 8, 10, ...

You can write the terms as:

$$2(1 + 1), 2(2 + 1), 2(3 + 1), \\ 2(4 + 1), , \dots;$$

$$a_5 = 2(5 + 1) = 2(6) = 12$$

$$a_n = 2(n + 1)$$

12. -3, -24, -81, -192, ...

You can write the terms as:

$$-3(1)^3, -3(2)^3, -3(3)^3, -3(4)^3, \dots;$$

$$a_5 = -3(5)^3 = -3(125) = -375$$

$$a_n = -3n^3$$



For the sequence, describe the pattern, write the next term, and write a rule for the n th term.

14. $\frac{1}{2}, \frac{1}{4}, \frac{1}{6}, \frac{1}{8}, \dots$

You can write the terms as:

$$\frac{1}{2(1)}, \frac{1}{2(2)}, \frac{1}{2(3)}, \frac{1}{2(4)};$$

$$a_n = \frac{1}{2(n)}$$

$$a_5 = \frac{1}{2(5)} = \frac{1}{10}$$



16. **Multiple Choice** Which rule gives the total number of circles in the n th figure of the pattern shown?

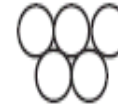
1



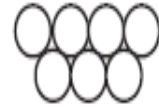
2



3



4



A. $a_n = 3n$

B. $a_n = n + 1$

C. $a_n = 2n - 1$

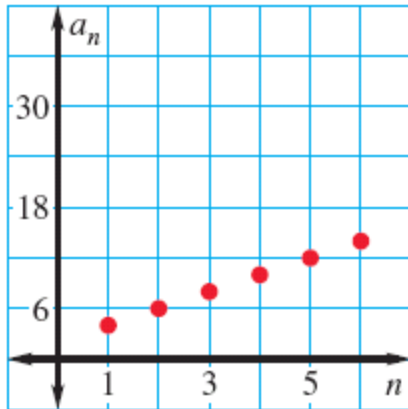
D. $a_n = \frac{n(n+1)}{2}$



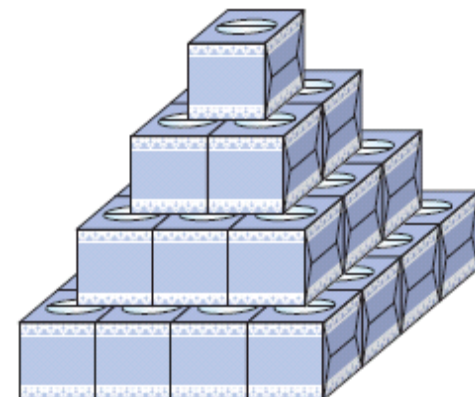
Match the sequence with the graph of its first 6 terms.

18. $a_n = 2(n + 1)$

C.



20. **Multiple Representations** A grocery store employee stacks tissue boxes six layers tall. The top four layers are shown.



- a. **Making a Table** Copy and complete the table.

Layer, n	1	2	3	4
Number of boxes, a_n	1	4	9	16

- b. **Writing a Rule** Write a rule for the number of tissue boxes in each layer.
- c. **Drawing a Graph** Graph the function from part (b) using the domain 1, 2, 3, 4, 5, 6.

$$a_n = n^2$$

