

Honors Algebra II

Review 7.1 - 7.3

Name _____

Write the first six terms of the sequence.

1. $a_n = n^2 + 6$

2. $a_n = n^2 - 3$

3. $a_n = 3^{n+1}$

4. $f(n) = 2^{n-1}$

5. $f(n) = -\frac{4}{3n}$

6. $f(n) = \frac{n}{3n+2}$

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

7. 2, 4, 8, 16

8. 1, 8, 27, 64

9. $\frac{1}{1}, \frac{1}{4}, \frac{1}{9}, \frac{1}{16}$

10. $\frac{4}{3}, \frac{5}{3}, \frac{6}{3}, \frac{7}{3}$

11. 3, 5, 7, 9

12. $\frac{4}{2}, \frac{8}{3}, \frac{12}{4}, \frac{16}{5}$

13. 0.7, 1.3, 1.9, 2.5

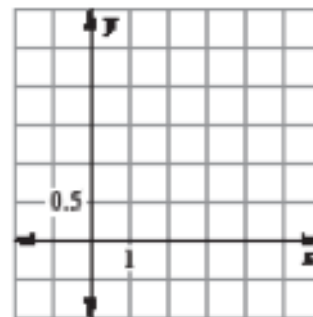
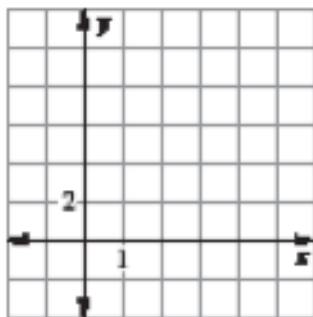
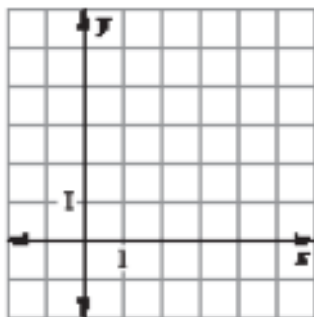
14. 1.0, 0.5, 0.0, -0.5

Graph the sequence.

15. 1, 2, 3, 4, 5

16. 2, 4, 6, 8, 10

17. $\frac{1}{2}, 1, \frac{3}{2}, 2, \frac{5}{2}$



Write the series using summation notation.

18. $-2 + 1 + 6 + 13 + 22 + \dots$

19. $\frac{2}{4} + \frac{4}{5} + \frac{6}{6} + \frac{8}{7}$

Find the sum of the series.

20. $\sum_{k=4}^8 3k - 2$

21. $\sum_{i=2}^4 i^2 + i + 4$

22. $\sum_{i=1}^{22} i$

23. **Jacket** You want to save \$30 to buy a jacket. You begin by saving a dollar in the first week. You plan to save an additional dollar each week after that. For example, you will save \$2 in the second week, \$3 in the third week, and so on. How many weeks must you save to have saved \$30?

LESSON
7.2

Tell whether the sequence is arithmetic. Explain why or why not.

1. 2, -5, -12, -19, -26

2. 3, 5.5, 8, 10.5, 13

3. 0, -5, -10, -12, -20

4. 2, 4, 8, 16, 32

5. 1, 2, 4, 7, 11

6. $\frac{3}{4}, \frac{7}{8}, 1, \frac{9}{8}, \frac{5}{4}$

Write a rule for the n th term of the arithmetic sequence. Then find a_{10} .

7. -4, 2, 8, 14, 20

8. -25, -29, -33, -37, -41

9. $\frac{1}{4}, 0, -\frac{1}{4}, -\frac{1}{2}, -\frac{3}{4}$

10. $d = 5, a_5 = 33$

11. $d = 2, a_6 = 10$

12. $d = -3, a_{12} = -34.5$

Write a rule for the n th term of the arithmetic sequence that has the two given terms.

13. $a_{20} = 240, a_{15} = 170$

14. $a_6 = 13, a_{14} = 25$

15. $a_9 = -14, a_{15} = -20$

16. $a_8 = -44, a_5 = -32$

17. $a_{16} = 6, a_{20} = 7$

18. $a_7 = \frac{6}{7}, a_9 = \frac{2}{3}$

Find the sum of the arithmetic series.

19. $\sum_{i=1}^8 (3i - 1)$

20. $\sum_{i=1}^{20} (-2i + 14)$

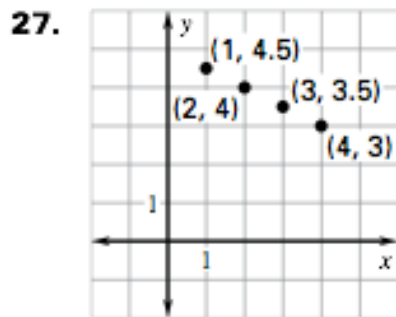
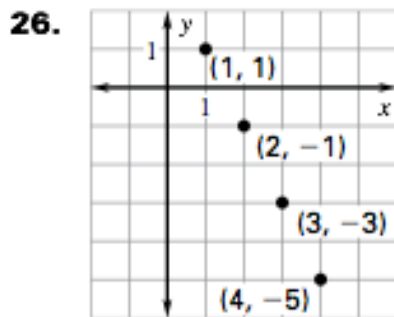
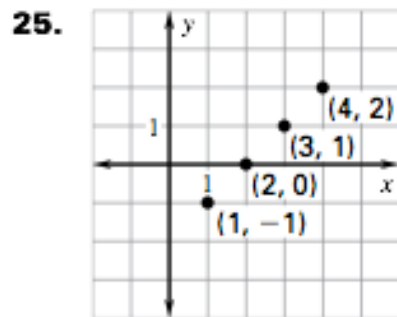
21. $\sum_{i=1}^{15} (-i - 6)$

22. $\sum_{i=6}^{12} (-5i + 17)$

23. $\sum_{i=4}^9 (6i - 30)$

24. $\sum_{i=8}^{16} (-11 + 4i)$

Write a rule for the sequence whose graph is shown.



28. **Auditorium** An auditorium has 25 rows. The first row has 10 seats, and each row after the first has 1 more seat than the row before it.

- Write a rule for the number of seats in the n th row.
- Find the total number of seats in the auditorium.

LESSON
7.3

Tell whether the sequence is geometric. *Explain why or why not.*

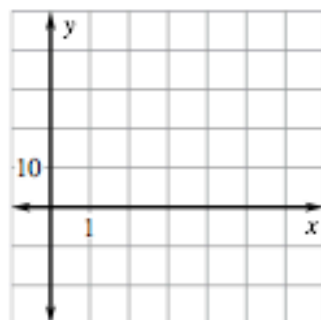
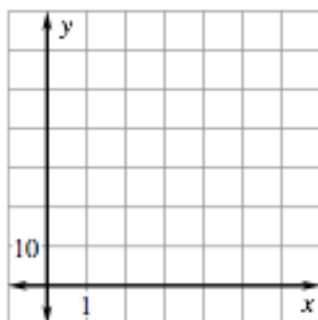
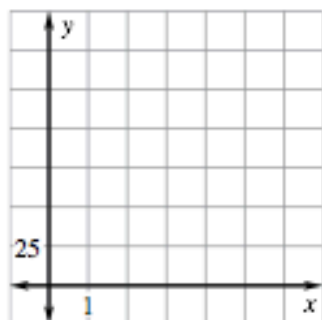
- 3, 5, 7, 9, 11, ...
- 5, 10, 20, 40, 80, ...
- 100, 50, 25, $\frac{25}{2}$, $\frac{25}{4}$, ...
- 1, 3, 7, 15, 31, ...
- 3, 9, 27, 81, 243, ...
- $-6, -2, -\frac{2}{3}, -\frac{2}{9}, -\frac{2}{27}, \dots$

Write a rule for the n th term of the geometric sequence. Find a_6 .
Then graph the first five terms of the sequence.

7. $r = 3, a_1 = 2$

8. $r = \frac{1}{10}, a_2 = 4$

9. $r = -\frac{1}{2}, a_3 = 8$



Write a rule for the n th term of the geometric sequence that has the two given terms.

10. $a_1 = 1, a_3 = 9$

11. $a_3 = 24, a_5 = 96$

12. $a_2 = 2, a_6 = 512$

13. $a_2 = 2, a_5 = \frac{1}{4}$

14. $a_3 = 25, a_6 = -\frac{25}{64}$

15. $a_4 = -\frac{8}{9}, a_7 = -\frac{64}{243}$

Find the sum of the geometric series.

16. $\sum_{i=1}^5 3(2)^{i-1}$

17. $\sum_{i=1}^8 90\left(\frac{1}{3}\right)^{i-1}$

18. $\sum_{i=1}^{10} 32\left(\frac{1}{2}\right)^{i-1}$

19. $\sum_{i=1}^{10} 8(3)^{i-1}$

20. $\sum_{i=0}^7 2\left(\frac{3}{2}\right)^{i-1}$

21. $\sum_{i=0}^{10} 1000\left(\frac{1}{2}\right)^{i-1}$

22. **Retirement** You invest \$20,000 in a retirement plan. The plan is expected to have an annual return of 12%. Write a rule for the amount of money a_n available in the plan at the beginning of the n th year. What is the balance of the account at the beginning of the 20th year?