

Unit 2 5.9 Review for Sequences Quiz

Name: Key

Determine if each sequence is either Arithmetic or Geometric, write a formula, and then find the specific term.

1. 51.2, 64, 80, 100, ...

a. Arithmetic or Geometric

b. Formula: _____

c. Find the 11th term (a_{11}).

476.84

2. 13, 10.5, 8, 5.5 ...

a. Arithmetic or Geometric

b. Formula: _____

c. Find the 25th term (a_{25}).

-47

3. 27, -9, 3, -1 ...

a. Arithmetic or Geometric

b. Formula: _____

c. Find the 7th term (a_7).

$\frac{1}{27}$ or $0.0\overline{37}$

4. 2, 9, 16, 23, ...

a. Arithmetic or Geometric

b. Formula: _____

c. Find the 42nd term (a_{42}).

289

5. 1056, 964, 872, 780, ...

a. Arithmetic or Geometric

b. Formula: _____

c. Find the 31st term (a_{31}).

-1704

6. -320, -1280, -5120, ...

a. Arithmetic or Geometric

b. Formula: _____

c. Find the 9th term (a_9).

-20, 971, 520

Find terms of each sequence.

7. $a_n = 8(-0.3)^n$

$a_1 = \underline{-2.4}$ $a_2 = \underline{0.72}$ $a_3 = \underline{-0.216}$

8. $a_n = -\frac{1}{4}(2)^{n-3}$

$a_5 = \underline{-1}$ $a_9 = \underline{-16}$ $a_{11} = \underline{-64}$

9. $a_n = -19 + 53n$

$a_3 = \underline{140}$ $a_6 = \underline{299}$ $a_{23} = \underline{1200}$

10. $a_n = 26 - 7(n - 1)$

$a_8 = \underline{-23}$ $a_{17} = \underline{-86}$ $a_{51} = \underline{-324}$

Given a term find n.

11. $a_n = 1204 - 5n$ Find n if $a_n = 729$

$$n = 95$$

12. $a_n = 800(.7)^n$ Find n if $a_n = 274.4$

$$n = 3$$

13. $a_n = -957 + 23n$ Find n if $a_n = -290$

$$n = 29$$

14. $a_n = 27\left(\frac{4}{3}\right)^n$ Find n if $a_n = 151.7$

$$n = 6$$

15. $a_n = -2(4)^n$ Find n if $a_n = -2048$

$$n = 5$$

16. $a_n = -41 - 19n$ Find n if $a_n = -1618$

$$n = 83$$

For questions 17-23: Write a formula for the scenario then answer the question using your formula.

17. You purchase a three year old used Kia Soul for \$14,061. If it is losing 15% of its value each year, how much will it be worth when it is 10 years old?

$$\$4507.63$$

18. A population of bacteria is initially 150 cells. If the population doubles every half hour, how many cells will there be in 8 hours?

$$9,830,400$$

19. After purchasing a 50 pound bag of dog food you estimated that your dog eats a half pound of food each day. How many pounds of food will you have left after 60 days?

20

20. Mrs. Pischke currently has a streak with 105 people on Snapchat. After the first week of second semester she had 130, and the second week she had 155. How many streaks will she have 7 weeks from now? (Assume none of her streaks end.)

280

21. The number of confirmed cases of people infected by a mystery illness is expanding. 24 people were initially diagnosed with the illness. After the first week 36 people were ill. At the end of the second week 54 people were infected. If this pattern continues, how many people do you expect will have contracted the disease after 12 weeks?

3113

22. Coach Belby asks his runners to increase their mileage in the summer by 10% each week. If Kole runs 30 miles during the first week of summer, how many miles should he run in the 10th week?

70.74

23. The new Star Wars movie was a big hit when it first came out. 5000 people in The Quad Cities went to see the movie on opening day. Since then, attendance has dropped. 4928 people saw the movie on the second day and 4856 went on the third day.

a. How many people do you suppose saw the movie on the 13th day?

4136

b. If this trend continues, how many days do you think it will be before attendance drops below 1000?

≈ 57