Topic: Recognizing arithmetic and geometric sequences

Predict the next 2 terms in the sequence. State whether the sequence is arithmetic, geometric, or neither. Justify your answer.

1. 4, −20, 100, −500, ...
2. 3, 5, 8, 12, ...
3. 64, 48, 36, 27, ...
4. 1.5, 0.75, 0, −0.75, ...
5. 40, 10, \( \frac{5}{2}, \frac{5}{8}, \ldots \)
6. 1, 11, 111, 1111, ...
7. −3.6, −5.4, −8.1, −12.15, ...
8. −64, −47, −30, −13, ...

9. Create a predictable sequence of at least 4 numbers that is NOT arithmetic or geometric.

Topic: Discrete and continuous relationships

Identify whether the following statements represent a discrete or a continuous relationship.

10. The hair on your head grows \( \frac{1}{2} \) inch per month.
11. For every ton of paper that is recycled, 17 trees are saved.
13. The average person laughs 15 times per day.
14. The city of Buenos Aires adds 6,000 tons of trash to its landfills every day.
15. During the Great Depression, from beginning to end, stock market prices fell a total of 75%.
Either find or use the rate of change for each of the questions below.

16. Apples are on sale at the market, 4 pounds for $2.00. What is the price (in cents) for one pound?

17. Three apples weigh about a pound. About how much would one apple cost? (Round to the nearest cent.)

18. One dozen eggs cost $1.98. How much does 1 egg cost? (Round to the nearest cent.)

19. One dozen eggs cost $1.98. If the charge at the register for only eggs, without tax, was $11.88, how many dozen were purchased?

20. Best Buy Shoes had a back to school special. The total bill for four pairs of shoes came to $69.24 (before tax.) What was the average price for each pair of shoes?

21. If you only purchased 2 pairs of shoes at Best Buy Shoes instead of the four described in problem 20, how much would you have paid, based on the average price?

Solve for x. Show your work.

22. $6x = 72$
23. $4x = 200$
24. $3x = 50$
25. $12x = 25.80$
26. $\frac{1}{2}x = 17.31$
27. $4x = 69.24$
28. $12x = 198$
29. $1.98x = 11.88$
30. $\frac{1}{4}x = 2$

31. Some of the problems 22 – 30 could represent the work you did to answer questions 16 – 21. Write the number of the equation next to the story it represents on the space provided.