Math 20 Pre-Calculus Practice Quiz Arithmetic Sequences and Series



20.1-1	2	3	4
Outcome 1-1: I can analyze arithmetic sequences and series to solve problems.	I can generate an arithmetic sequence. I can identify arithmetic series.	I can determine a, n, d, or t_n in multistep problems.	I can solve situational questions. I can answer theory-based questions
	I can find a, n, d, or t_n involving single steps.	I can solve questions with variable answers	No mistakes

Level 2

- 1. Circle each sequence that could be arithmetic. Determine its common difference, d.
 - a. 6, 10, 14, 18, ...

- b. 2, -4, 8, -16, ...
- 2. This sequence is arithmetic. Determine the common difference, d, and then list the next 3 terms.

3. Determine the indicated term in the arithmetic sequence.

4. For this arithmetic sequence -3, 2, 7, 12, ... which term has the value 212?

5. Determine the sum of the first 20 terms of the arithmetic series:

6. Determine S_{28} for the arithmetic series: -4 - 11 - 18 - 25 - ...

7. Use the given data about each arithmetic series to determine the indicated value.

a.
$$S_{20} = -850$$
 and $t_{20} = -90$, determine t_1 .

b. $s_{\scriptscriptstyle n} = -126, t_{\scriptscriptstyle 1} = -1, {\rm and} \ t_{\scriptscriptstyle n} = -20$, determine n.

Level 3

8. Determine whether 100 is a term of an arithmetic sequence with $t_{\rm 3}=250\,{\rm t}$ and $t_{\rm 6}=245.5$

- 9. The Chinese zodiac associates years with animals. Ling was born in 1994, the Year of the Dog.
 - a. The Year of the Dog repeats every 12 years. List the first three years that Ling will celebrate her birthday in the Year of the Dog.

b. Why do the years in part a form an arithmetic sequence?

c. In 2099, Nunavut will celebrate its 100th birthday. Will that year also be the Year of the Dog?

10. Ryan's grandparents loaned him the money to purchase a BMX bike. He agreed to repay \$25 at the end of the first month, \$30 at the end of the second month, \$35 at the end of the third month, and so on. Ryan repaid the loan in 12 months. How much did the bike cost?

Level 4

11. The sum of the first two terms of an arithmetic series is 15 and of the next two terms is 43. What are the first four terms of the series?

- 12. Consider the arithmetic series 7 + 19 + 31 + 43 + 52 +
 - a. How many terms are less than 1000?
 - b. How many terms are less than 2000?
 - c. Comment on the results from parts a and b
 - d. What is the maximum number of terms for a sum of the series less than 1000?
 - e. What is the maximum number of terms for a sum of the series less than 2000?