

**Unit 06-02 - Sample Quiz: Arithmetic & Geometric Series****Multiple Choice**

Identify the choice that best completes the statement or answers the question.

\_\_\_\_\_ 1. **Arithmetic Series**

Find the sum of the first 18 terms for the **arithmetic series** ( $S_{18}$ ):

$$5 + 8 + 11 + 14 + 17 + \dots + 53 + 56 =$$

- |        |         |
|--------|---------|
| a. 522 | c. 1044 |
| b. 549 | d. 1098 |

\_\_\_\_\_ 2. **Arithmetic Series**

Jack decided to start exercising. The first day he jogged for 20 minutes. The next day he wanted to jog for 3 minutes more than the previous day. He wanted to continue increasing by the same amount like this for every one of the days in a week.

If he succeeded in doing this how many **total** minutes did he run for the week?

- |               |                |
|---------------|----------------|
| a. 38 minutes | c. 174 minutes |
| b. 58 minutes | d. 203 minutes |

\_\_\_\_\_ 3. **Arithmetic Series**

Find the sum of the finite **arithmetic series**.

$$\sum_{n=1}^{12} 3n - 1$$

- |       |        |
|-------|--------|
| a. 35 | c. 210 |
| b. 37 | d. 222 |

\_\_\_\_\_ 4. **Geometric Series**

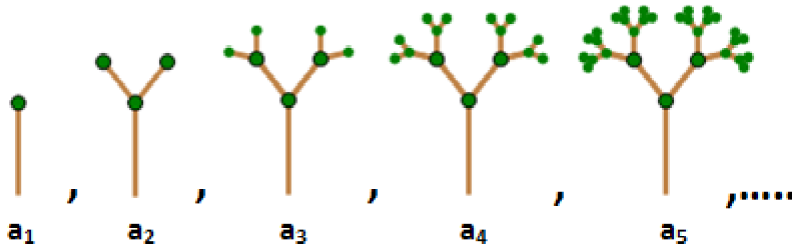
Find the sum of the first 7 terms for the **geometric series**:

$$\frac{1}{3} + 1 + 3 + 9 + \dots$$

- |                     |                      |
|---------------------|----------------------|
| a. $121\frac{1}{3}$ | c. $364\frac{1}{3}$  |
| b. $243\frac{1}{3}$ | d. $1093\frac{1}{3}$ |

5. **Geometric Series**

Johnny Appleseed was creating a fractal tree design:



	$a_1$	$a_2$	$a_3$	.....	$a_7$
New Leaves	1	2	4	.....	??
Total Leaves	1	3	7	.....	??

The first tree, ( $a_1$ ), only has 1 leaf (*the green point*). The second tree, ( $a_2$ ), has a total of 3 leaves. The third tree, ( $a_3$ ), has 7 total leaves. How many **total** leaves will be on the 7<sup>th</sup> tree?

- a. 63
- b. 127
- c. 128
- d. 256

6. **Geometric Series**

Find the sum of the finite geometric series.

$$\sum_{n=1}^{10} 5(2)^{n-1}$$

- a. 5
- b. 500
- c. 4955
- d. 5115

7. Rewrite the repeating number as a fraction

0.17171717.....

- a.  $\frac{2}{9}$
- b.  $\frac{17}{101}$
- c.  $\frac{17}{99}$
- d.  $\frac{171}{101}$

8. **Infinite Geometric Series**

Find the sum of the infinite geometric series, if possible.

$486 + 162 + 54 + 18 + 6 + \dots$

- a.  $\frac{1}{3}$
- b. 972
- c. 726
- d. 729

Name: \_\_\_\_\_

ID: A

9. **Infinite Geometric Series**

Find the sum of the infinite geometric series, if possible.

$$\sum_{n=1}^{\infty} 3 \left( \frac{2}{5} \right)^{n-1}$$

a. 5

c.  $\frac{3}{5}$

b.  $\frac{6}{5}$

d.  $\infty$ , *the series is divergent*