**Pre-Calculus Mathematics 12**

**Chapter 1 Test**

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

 Mr. Formaran

**True or False (5 marks)**

\_\_\_\_\_\_\_\_ a. A finite sequence is a function for which the domain is the subset of natural

numbers: {1, 2, 3, … n}

\_\_\_\_\_\_\_\_ b. The integer *k* is called index of the sum, which shows where the summation starts.

 The integer *n* shows where the summation ends

\_\_\_\_\_\_\_\_ c. The formula tn = a + (n – 1) d is used for arithmetic sequence.

\_\_\_\_\_\_\_\_ d. The indicated sum of the terms of a sequence is called series

n

2

n

2

\_\_\_\_\_\_\_\_ e. The formula Sn = (a + l) or = [2a + (n – 1) d] is used for arithmetic series

\_\_\_\_\_\_\_\_ f. The number *r* is called the common ratio of the geometric sequence

\_\_\_\_\_\_\_\_ g. The nth term of a geometric sequence with common ratio has the form tn = arn-1

 a – rl

 1 - r

a(1 – rn)

 1 - r

Sn =

Sn =

\_\_\_\_\_\_\_\_ h. The formulas or can be used for geometric series

\_\_\_\_\_\_\_\_ i. In summation, an arithmetic series has its variable in the base.

 A geometric series has its variable in the exponent.

S =

 a

 1 - r

\_\_\_\_\_\_\_\_ j. The formula , /r/ < 1 or -1 < r < 1

**Section 1.1 (4 marks)**

tn = a + (n-1) d b =

a + c

2

1. Find the sum of the sequence: 6

 (4k – k)

 k = 1

2. Find the 21st term of the arithmetic sequence 3, 5, 7, 9, …

3. The 6th term of an arithmetic sequence is 30, and the 11th term is 50. Find the 1st term.

4. Find x so that 2x, 11 – x, 3x + 1 are consecutive terms of an arithmetic sequence.

**Section 1.2 (4 marks)**

Sn = (a + l) Sn = [2a + n-1)d] form: a1 = FT:

 l = a + (n – 1)d

 LT - FT

 x + 1

 *d k*

(a)(x) + b

n

2

n

2

1. Find the sum of the positive integers from 1 to 143 inclusive.

2. Find the sum of the first 25 terms of the arithmetic series 12 + 16 + 20 + …

3. Write 8 + 11 + 14 + 17 + … + 80 in summation notation.

4. Find 2 arithmetic means between 16 and 43.

**Section 1.3 (4 marks)**

a4 = ar4-1 🡺 ar3 ar9=ar3 r6

a10 = ar10-1 🡺 ar9 (Example)

tn = arn-1

an = arn-1

1. For geometric sequence 7, 14, 28, 56, … , find the common ratio.

2. a. Find the 10th term of the geometric sequence 5, 10, 20, 40.

 b. Find the 10th term of 16 384, 8 192, 4 096, 2 048.

3. The 5th term of a geometric sequence is 1024 and the 11th term is 16. Find the 14th term.

**Section 1.4 (4 marks)**

 n

 a – rl

 1 - r

Sn =

Sn =

a(1 – rn)

 1 - r

 ark-1

 k = 1

1. Find the sum of the geometric series 0.25 + 0.5 + 1 + 2 + … + 256

2. Find the sum of the first 10 terms of geometric series 20 + 10 + 5 + 2.5 + …

3. Find the sum of the geometric series 6

 4(3)n-1

 k = 1

4. Write the geometric series 2 + 4 + 8 + 16 + 32 + 64 + 128, using sigma notation

with the index k=1

**Section 1.5 (4 marks)**

S =

 a

 1 - r



1. Find the sum of the infinite geometric series -10 + 5 - 2.5 + 1.25 …

2. Find the sum

 5 (0.5)k-1

 k = 1

3. Write the repeating decimal 0.12 as fraction

4. Solve for x:

 xk = 0.75

 k = 1

**Self-Evaluation**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Please rate yourself in each skill/statement** | **1** | **2** | **3** | **4** |
| **Section 1.1** |
| I understand the arithmetic sequence |  |  |  |  |
| I can solve question/problem about arithmetic sequence |  |  |  |  |
| I can explain how I solved a question/word problem |  |  |  |  |
| I can make my own example about arithmetic sequence |  |  |  |  |
| **Section 1.2** |
| I understand the arithmetic series |  |  |  |  |
| I can solve question/problem about arithmetic series |  |  |  |  |
| I can explain how I solved a question/word problem |  |  |  |  |
| I can make my own example about arithmetic series |  |  |  |  |
| **Section 1.3** |
| I understand the geometric sequence |  |  |  |  |
| I can solve question/problem about geometric sequence |  |  |  |  |
| I can explain how I solved a question/word problem |  |  |  |  |
| I can make my own example about geometric sequence |  |  |  |  |
| **Section 1.4** |
| I understand the geometric series |  |  |  |  |
| I can solve question/problem about geometric series |  |  |  |  |
| I can explain how I solved a question/word problem |  |  |  |  |
| I can make my own example about geometric series |  |  |  |  |
| **Section 1.5** |
| I understand the infinite geometric series |  |  |  |  |
| I can solve question/problem about infinite geometric series |  |  |  |  |
| I can explain how I solved a question/word problem |  |  |  |  |
| I can make my own example about infinite geometric series |  |  |  |  |
| **Participation and Interest** |
| I feel confident in all sections of chapter 1 |  |  |  |  |
| I am happy with my performance in this chapter |  |  |  |  |
| I participate in classroom discussion |  |  |  |  |
| I answer diligently the homework/s |  |  |  |  |
| I ask clarification when I don’t understand |  |  |  |  |
| I come for help during lunch time/after-school hours |  |  |  |  |
| I think I need more examples to fully understand each section of the chapter |  |  |  |  |
| The pacing of the lessons are too fast for me |  |  |  |  |
| I think I need to come for help during lunch and after-school hour |  |  |  |  |
| Others: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  |  |  |  |
| **Question/Comment/Suggestion:** |