Revision Worksheet
10 advance (Mathematics)
Chapter – 13 (Sequences and Series)

1. **$f(n) = a.b^n$, $a \neq 0$ $b > 0$, $b \neq 1$This equation represents _____.**

a) the geometric explicit formula
b) an exponential function
c) the recursive geometric formula
d) a linear function

2. **What is the common ratio of sequence: $g_n = -16 \cdot \left(-\frac{1}{4}\right)^{n-1}$?**

a) -16
b) $-\frac{1}{4}$
c) $n - 1$
d) 4

3. **Is the sequence arithmetic: 37, 31, 25, 19, ...**
   a) Yes
   b) No

4. **Is the sequence 2, 4, 12, 48,... geometric?**
   a) yes
   b) no

5. **5, 15, 45, 135 is a ...**
   a) Geometric sequence with r = 3
   b) Geometric sequence with r = 1/3
   c) Arithmetic sequence with d = 10
   d) Arithmetic sequence with d = 3

6. **Identify the common difference.**
   97, 86, 75, 64, ...
   a) 8
   b) 11
   c) -11
   d) -8

7. **Find the common ratio: 4, -16, 64, -256, ...**
   a) r = -4
   b) r = 2
   c) r = -2
   d) r = 4

8. **Write a formula for the following sequence:**
   5, 8, 11, 14, 17...
   a) $a_n = 3n + 2$
   b) $a_n = 8 - 5n$
   c) $a_n = 5(3)^{n-1}$
   d) $a_n = 5 + 3n$

9. **Write a formula for the following sequence:**
   4, 12, 36, 108...
   a) $a_n = 4(3^{n-1})$
   b) $a_n = 4(3^n)$
   c) $a_n = 4+3n$
   d) $a_n = 4(3n)$

10. **Write a formula for the following sequence:**
    2, 8, 14, ...
    a) $a_n = 2 + 6n$
    b) $a_n = - 6 + 6n$
    c) $a_n = 6n - 4$
    d) $a_n = 4 - 6n$

11. **Find a_{18} for the following geometric sequence,**
    -3, 6, -12, 24,,,
    a) -37
    b) -786,432
    c) 393,216
    d) 258,280,326

12. **Find the next three terms: 4, 12, 36, 108, ...**

    a) 324, 972, 2916
    b) 972, 2916, 8748
    c) 405, 1215, 3645

13. **Find the general rule for: 64, -32, 16, -8, …**

    a) $64(1/2)^{n-1}$
    b) $(-32)^{n-1}$
    c) $64(-1/2)^{n-1}$
    d) $(32)^{n-1}$

14. **Find the 11^{th} term for: 64, -32, 16, -8, …**
    a) -.0625
    b) .0625
    c) -.03125
    d) .03125

15. **What is the sum of the first ten terms of the sequence 4, -12, 36, -144 . . . ?**
    a) 59,050
    b) -59,048
    c) -78,732
    d) 118,096

16. **Insert 2 geometric mean between 4 and 108.**
    a) 12 and 36
    b) 24 and 72
    c) 36 and 96
    d) 30 and 90

17. **The sixth term of a geometric sequence is 1215 and the third term is 45. Find the first term.**

a) 5
b) 6
c) 7
d) 8

18. Find the sum of the geometric series
7 + 14 + 28 + 56 + ... + 7168.
a) 14,327
b) 14,329
c) 14,331
d) 14,333

19.. Evaluate: $\sum_{x=2}^{11} (5x - 2)$

a) 305
b) 503
c) 53
d) 8

20.. Expand: $\sum_{k=3}^{6} (2k - 1)$

a) 4, 6, 8, 10
b) 4, 6, 8
c) 5, 7, 9, 11
d) 5, 7, 9

21. What best describes the following infinite geometric series:
1/2 + 3/4 + 9/8 + ...
a) Diverges
b) Converges

22. What best describes the following infinite geometric series:
1/3 - 1/9 + 1/27 - 1/81 + ...
a) Diverges
b) Converges

23. Evaluate the infinite geometric series:
1 + 1/5 + 1/25 + ...
a) 5/4
b) 9/5
c) 5/6
d) 65/27

24. Evaluate the infinite geometric series:
3 - 2 + 4/3 - 8/9 + ...
a) 5/4
b) 9/5
c) 5/6

d) 65/27

9. Find the sum of the infinite geometric series, if it exists. $\sum_{n=1}^{\infty} 8\left(\frac{1}{5}\right)^{n-1}$ 4

a) 8
b) 8/5
c) 10
d) Does not exist