

## Ch 12 review

Date \_\_\_\_\_ Period \_\_\_\_\_

**Evaluate**

1)  $\sum_{m=1}^{10} (10m - 20)$

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

3)  $\sum_{n=1}^7 (-6)^{n-1}$

4)  $\sum_{i=1}^8 (-3)^{i-1}$

**Determine the number of terms  $n$  in each arithmetic series.**

5)  $a_1 = 3, a_n = 31, S_n = 255$

6)  $a_1 = -1, a_n = 97, S_n = 2400$

**Determine if each geometric series converges or diverges.**

7)  $\sum_{m=1}^{\infty} -\left(-\frac{1}{3}\right)^{m-1}$

8)  $\sum_{n=1}^{\infty} 4 \cdot \left(-\frac{3}{2}\right)^{n-1}$

9)  $\sum_{k=1}^{\infty} \frac{27}{4} \cdot \left(\frac{2}{3}\right)^{k-1}$

10)  $\sum_{k=1}^{\infty} -6 \cdot \left(\frac{1}{4}\right)^{k-1}$

11)  $\sum_{i=1}^{\infty} 2 \cdot (-3)^{i-1}$

12)  $\sum_{n=1}^{\infty} -4 \cdot 2^{n-1}$

13)  $\sum_{m=1}^{\infty} 1.2 \cdot 0.5^{m-1}$

**Determine the common ratio of the infinite geometric series.**

14)  $a_1 = 1, S = 2.5$

15)  $a_1 = 1, S = 10$

**Evaluate each infinite geometric series described.**

16)  $\sum_{k=1}^{\infty} 2 \cdot \left(\frac{1}{2}\right)^{k-1}$

17)  $\sum_{k=1}^{\infty} 4 \cdot 3^{k-1}$

**Rewrite each series using sigma notation.**

18)  $5 + 25 + 125 + 625$

19)  $1 + 4 + 9 + 16 + 25$

**Find the tenth term in each sequence.**

$$20) a_n = -\frac{37}{15} + \frac{2}{3}n$$

$$21) a_n = \frac{2^n}{2n + 1}$$

**Determine if the sequence is geometric. If it is, find the common ratio, the 8th term, and the explicit formula.**

$$22) 3, -18, 108, -648, \dots$$

$$23) 4, 8, 16, 32, \dots$$

**Evaluate each infinite series described.**

$$24) \sum_{i=1}^{\infty} 9.4 \cdot 0.8^{i-1}$$

$$25) \sum_{m=1}^{\infty} 243 \cdot \left(\frac{1}{3}\right)^{m-1}$$

**Find the explicit formula.**

$$26) 12, 9, 6, 3, \dots$$

$$27) 4, 104, 204, 304, \dots$$

$$28) -4, 20, -100, 500, \dots$$

$$29) -4, -12, -36, -108, \dots$$

$$30) -3, 6, -12, 24, \dots$$