

In-Class Problems 23 for Wednesday, April 25

These problems are from [Pre-Class Problems 23](#).

1. Find the sum of the following arithmetic sequences.

a. $\sum_{i=1}^{25} (3i - 7)$

b. $\sum_{j=1}^{101} (j + 4)$

2. Determine if the following sequences are geometric. If the sequence is geometric, then find the common ratio.

a. $3, -6, 12, -24, 48, \dots$

b. $5, \frac{5}{2}, \frac{5}{3}, \frac{5}{4}, 1, \dots$

3. Write the first five terms of the geometric sequence $\{a_n\}$ with the given first term and common ratio.

a. $a_1 = -4$ and $r = 3$

b. $a_1 = 1$ and $r = -\frac{1}{4}$

4. Find the sum of the following geometric sequences, if possible.

a. $\sum_{n=1}^5 (-3)2^{n-1}$

b. $\sum_{n=1}^5 \left(-\frac{1}{5}\right)^{n-1}$

c. $\sum_{n=1}^{\infty} 5\left(\frac{3}{4}\right)^{n-1}$

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

e. $\sum_{n=1}^{\infty} 12\left(\frac{5}{4}\right)^{n-1}$