

Name _____

- No calculators allowed.
- Show sufficient work to justify each answer.
- You have 20 minutes for this quiz.

1. (4 points) Write a formula for the n th term of the sequence in standard form, and find the limit of the sequence.

(a) $\left\{ \frac{81}{8}, -\frac{27}{4}, \frac{9}{2}, -3, \dots \right\}$

(b) $\{-13, -10, -7, -4, \dots\}$

2. (2 points) Consider an arithmetic sequence whose 3rd term is 14 and whose 7th term is 46. Find the generating function $a(n)$ that describes the sequence.

3. (2 points) Consider a geometric sequence whose 9th term is 32 and whose 13th term is 2. Find the fifteenth term of this sequence.

4. (2 points) If $r > 1$, find $\lim_{n \rightarrow \infty} a_1 r^{n-1}$.