BECA/Huson/Algebra II: Regents Prep Name:
14 May 2024

Practice Regents problems #12

AII-F.BF.6 Represent and evaluate the sum of a finite arithmetic or finite geometric series, using summation (sigma) notation. For geometric series:

$$\sum_{k=1}^{n} a_k = a_1 + a_2 + \ldots + a_n = a_1 \left(\frac{1 - r^n}{1 - r} \right)$$

1. Given the sequence $12\frac{1}{4}$, $21\frac{3}{4}$, $31\frac{1}{4}$, $40\frac{3}{4}$, ...

   (a) Determine whether the sequence is arithmetic or geometric, then find the common difference d or the common ratio r.

   (b) Write a recursive formula for the sequence.

   (c) Write an explicit formula for the sequence.

   (d) Find the fifth term the sequence.

2. Express each of the following in simplest radical form.

   (a) $(27x^2)^{\frac{1}{3}}$ (b) $(4x^4)^{\frac{3}{2}}$