

Practice Regents problems #10

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

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

1. Given the geometric sequence $20\frac{1}{4}, 27, 36, 48, \dots$

(a) Find the common ratio r .

(b) Write a recursive formula for the sequence.

(c) Write an explicit formula for the sequence.

(d) Find the sum of the first 10 terms the sequence rounded to the *nearest hundredth*.

2. Simplify each expression.

(a) $\sqrt[4]{81x^2}$

(b) $\frac{\sqrt[3]{x^6}}{\sqrt{x^{-4}}}$

AII-F.LE.2: Construct a linear or exponential function symbolically given: a graph, a description of the relationship, or two input-output pairs (include reading these from a table).

3. Given the cubic function $f(x) = 0.2(x + 2)^2(x - 3)$, graphed below.

(a) State the zeros of the function.

(b) Over the interval $-2 < x < 1$, is the function increasing, decreasing, or constant?

(c) Find the average rate of change of the function over the interval from point A to point B .

