

Practice Regents problems #8

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 sequence a : $4\frac{1}{2}$, 6, 8, $10\frac{2}{3}$, ...
 - (a) State whether the sequence is arithmetic, geometric, or neither. Justify your answer by showing the calculation of the common difference d or ratio r .
 - (b) Write a recursive formula for a .
 - (c) Write an explicit formula for the sequence.
 - (d) Find the sum of the first eight terms the sequence.
2. Express each of the following in simplest radical form.
 - (a) $(4x)^{\frac{1}{2}}$
 - (b) $9x^{-\frac{1}{2}}$

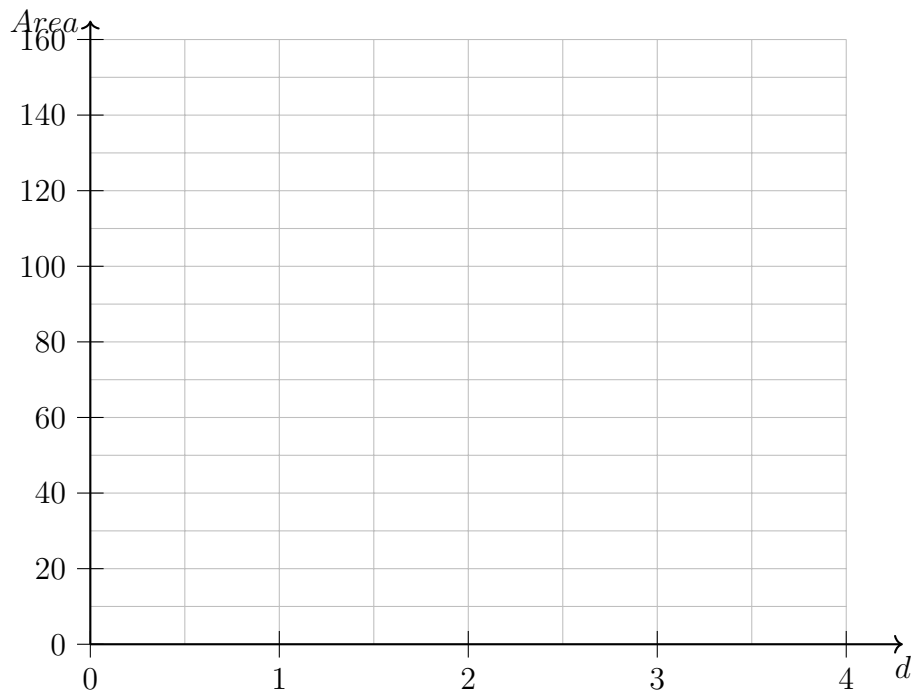
AII-F.LE.2: Construct a linear or exponential function symbolically given: a graph, a description of the relationship, or two input-output pairs (include reading these from a table).

3. The area, in square meters, of a pond covered by an algae bloom decreases exponentially after a treatment is applied.

- (a) Fill out the table, giving the area covered by the algae in square meters days after the treatment is applied.

Days	0	1	2	3	4
Area	150		50		

- (b) Another pond has an algae bloom that is also decreasing exponentially. The area of this bloom in square meters is given by the function $B(d) = 120 \times 3^{-\frac{d}{3}}$, where d is days since the first measurement of the bloom.



- (c) Which of the two algae blooms was larger initially? Which is decreasing more quickly? Explain how you know.