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

Practice Regents problems #7

AII-F.BF.2: Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.

1. Given the sequence a: 32, 24, 18, 13.5, ...

   (a) State whether the sequence is arithmetic, geometric, or neither. Justify your answer.

   (b) Write a recursive formula for a.

   (c) Write an explicit formula for the sequence.

   (d) Find the sum of the first three terms the sequence.

2. Express the fraction $\dfrac{3x^{\frac{5}{2}}}{(27x^3)^{\frac{2}{3}}}$ in simplest radical form.

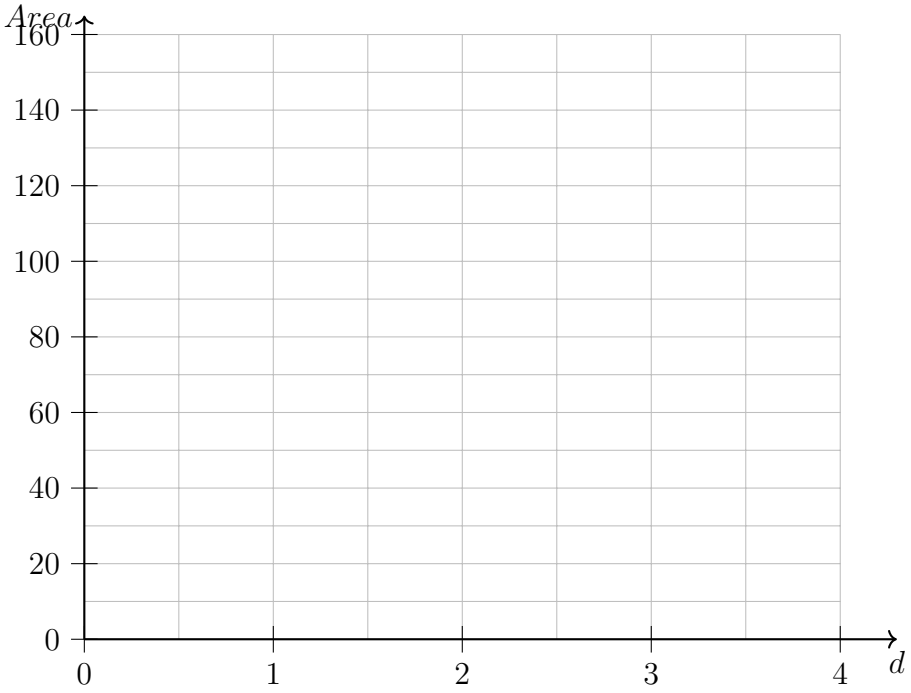
AII-F.LE.2: Construct a linear or exponential function symbolically given: a graph, a description of the relationship, or two input-output pairs (include reading these from a table).

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.