CCDSTRU Exercise # _____ Date: _____

Names: _____ Section: _____

A . **Sequences**

1. Given that $a_2 = 6$ and $a_6 = 96$ are terms of a geometric sequence, find a_4.

2. Given that $a_{10} = 78$ and $a_{25} = 198$ are terms of an arithmetic sequence, find a_n.

3. $6, 10, 16, 24, \ldots$ Find the explicit formula for a_n, where $n \geq 1$.

4. $\frac{-2}{5}, \frac{1}{10}, \frac{4}{15}, \frac{7}{20}, \ldots$ Find a_n, where $n \geq 1$.

5. $5, 8, 17, 44, 125, \ldots$Find the recurrence formula for a_n, where $n \geq 1$.

B . **Sums.** Show the first few steps (as indicated below) and the final answer in evaluating the given summation. Final answers must be in its simplest whole or rational number, or expression.

$$\sum_{n=m}^{10} 15m^3 = \underline{\qquad\qquad} \textit{first step}$$

$$= \underline{\qquad\qquad} 2^{nd} \textit{ step}$$

$$\vdots$$

$$= \underline{\qquad\qquad} \textit{final answer}$$

$$\sum_{k=0}^{2n+2} (3k + 2n) = \underline{\qquad\qquad} \textit{first step}$$

$$= \underline{\qquad\qquad} 2^{nd} \textit{ step}$$

$$= \underline{\qquad\qquad} 3^{rd} \textit{ step}$$

$$\vdots$$

$$= \underline{\qquad\qquad} \textit{final answer}$$

$$\sum_{j=11}^{n} (j+2)^2 =$$

first step

$=$

$\mathbf{2^{nd}}$ *step*

$=$

$\mathbf{3^{rd}}$ *step*

$=$

$\mathbf{4^{th}}$ *step*

$\vdots$

$=$

final answer