Discrete Assignment
EE1205 Signals and Systems

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Question 11.9.3.8: Find the sum to indicated number of term in each of the geometric progressions in $\sqrt{7}, \sqrt{21}, 3\sqrt{7}, ...n$ terms
Solution: Sum of the geometric progression of $\sqrt{7}, \sqrt{21}, 3\sqrt{7}, ...n$ terms is

the common ratio of geometric progression is

$$r = \frac{a_2}{a_1} \tag{1}$$

common ratio

$$r = \frac{\sqrt{21}}{\sqrt{7}} \tag{2}$$

$$= \sqrt{3} \tag{3}$$

first term of the geometric progression is

$$a_1 = \sqrt{7} \tag{4}$$

sum of n term in geometric progression is

$$S_n = \frac{a_1(r^n - 1)}{r - 1} \tag{5}$$

Then, Sum of n term of given geometric progression is

$$S_n = \frac{\sqrt{7}(\sqrt{3}^n - 1)}{(\sqrt{3} - 1)} \tag{6}$$

$$= \frac{\sqrt{7}(\sqrt{3}^n - 1)}{(\sqrt{3} - 1)} \tag{7}$$