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## Problem 1 - Scatter Plots

For each sequence, write the common ratio and give a description, or sketch, of the scatter plot.

- Sequence B
- Sequence D
- Sequence F
- Sequence H
- Sequence J
- Make a conjecture about the scatter plot of a geometric sequence, the common ratio, and/or the sign of the first term of the sequence.


## Problem 2 - Explicit Formulas

- Find the 16 th term of the geometric sequence with a first term of 2 and common ratio of 1.8 .
- Determine a general explicit rule for finding any term of a geometric sequence.


## Geometric Sequences \& Series

Problem 3 - An Interesting Observation

- Work through pages 3.1 and 3.2 and make a conjecture about your findings.

Problem 4 - Sums of Series

- Find the sum of the six terms of the sequence on page 4.2.
- Advance to page 4.4 to find the sum of the first 10 terms in the sequence shown on page 4.3.


## Extension

- Use the Scratchpad to show that each method described on page 5.1 gives the same sum found on page 4.4.

| 4.3 | 4.4 | 5.1 |
| :--- | :--- | :--- |
| Extension The sum of the first $n$ terms of a |  |  |
| geometric series can be found any of the |  |  |
| following ways. Show this is true for the sum |  |  |
| of the series in Problem 4. |  |  |
| * divide $u_{1}-u_{1} r^{n}$ by $(1-r)$ |  |  |
| *divide $u_{1}\left(1-r^{n}\right)$ by $(1-r)$ |  |  |
| * divide $u_{1}-u_{n} r$ by $(1-r)$ |  |  |

