Honors Algebra 2 Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

WS 12.5 Hour \_\_\_\_\_\_\_

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| **Determine whether each geometric series converges or diverges. Explain why.** |
| **1.** |  | **2.** |  |
| **3.** |  | **4.** |  |
| **Find the sum of each infinite geometric series, if it exists.**  |
| **5.** |  | **6.** |  |
| **7.** |  | **8.** |  |
| **9.** |  | **10.** |  |
| **11.** |  | **12.** |  |
| **Solve.**  |
| **13.** | **Ron won a prize that pays $200,000 the first year and half of the previous year’s amount each year for the rest of his life.**  |
| **A.** | Write the first 4 terms of a series to represent the situation. | **B.** | Write a general rule for a geometric sequence that models his prize each year.  |
| **C.** | Estimate Ron’s total prize in the first 10 years.  | **D.** | If Ron lives forever, what is the total of his winnings? |
| **14.** | **A movie earned $60 million in the first week that it was released. In each successive week, sales declined by about 20%.**  |
| **A.** | Write a general rule for a geometric sequence that models the movie’s sales each week. | **B.** | Estimate the movie’s total sales in the first 8 weeks. |
| **C.** | If this pattern continued indefinitely, what would be the movie’s total sales? |  |  |

Book work: p. 904 (28, 29, 38, 45, 61 – 64)