Geometric Sequence Worksheet

1. State whether or not the sequence is geometric. If it is a geometric sequence state the common ratio.
    a. 1, 2, 4, 8, 16…
    b. 4, 9, 16, 25, …
    c. -3, 2, 7, 12, 17, …
    d. 2, 4, 6, 8, 10, …
    e. 6, 0.6, 0.06, 0.006, …

2. State the common ratio and the next 3 terms of each.
    a. -1, -3, -9, …
    b. 48, 24, 12, …
    c. 25, -50, 100, …
    d. $\frac{1}{2}, \frac{1}{6}, \frac{1}{18}, \ldots$

3. For each geometric sequence, determine the indicated value.
    a. 3, 6, 12, … (find t_7)
    b. 18, 9, 4.5, … (find t_6)
    c. $2, \frac{1}{2}, \frac{1}{8}, \ldots$ (find t_5)

4. Write the first 5 terms of a geometric sequence where:
    a. The 6th term is 64
    b. The 1st term is $\frac{3}{4}$

5. Given the following information, find the indicated values.

   $t_1 = -1$ and $r = -2$

   i) Find t_9

   ii) The last term is -4096. How many terms in the sequence?

6. A ball is dropped from a height of 25 meters. After each bounce, the ball rises to 80 percent of the previous height.
   a. Write the first 3 terms of a geometric sequence that models the height of the ball in meters.
   b. To the nearest centimetre, to what height does the ball rise after the 5^{th} bounce?
   c. To the nearest centimetre, to what height does the ball rise after the 10^{th} bounce?
   d. After how many bounces does the ball rise to a height less than 1 meter?