Algebra 1             7.7
Identify and generate geometric sequences
Relate geometric sequences to exponential
functions
sequence
arithmetic sequence (3.5)
geometric sequence                              Quiz 7.5-7.6
common ratio            W B 7.7 prac.
whiteboards

Arithmetic or geometric? Explain.

**2A.** $-3, 15, -75, 375, \ldots$

**2B.** $24, 36, 54, 81, \ldots$

3, 6, 12, 24, 48...
first term:
common ratio (r):
look for patterns

**27.** The first term of a geometric series is 2 and the common ratio is 4. What is the 14th term of the sequence?

**KeyConcept** *n*th term of a Geometric Sequence

The *n*th term $a_n$ of a geometric sequence with first term $a_1$ and common ratio $r$ is given by the following formula, where *n* is any positive integer and $a_1, r \neq 0$.

$$a_n = a_1 r^{n-1}$$

**28.** What is the 15th term of the geometric sequence $-9, 27, -81, \ldots$?

**Example 3** Find the *n*th Term of a Geometric Sequence

**a.** Write an equation for the *n*th term of the sequence $-6, 12, -24, 48, \ldots$ .

find $a_1$
find $r$
answer the question

**b.** Find the ninth term of this sequence.

**3.** Write an equation for the $n$th term of the geometric sequence 96, 48, 24, 12, … . Then find the tenth term of the sequence.

**BASKETBALL** The NCAA women's basketball tournament begins with 64 teams. In each round, one half of the teams are left to compete, until only one team remains. Draw a graph to represent how many teams are left in each round.

(1,64)