1. Find the common ratio of each of the following geometric sequences.

Pick a term in the sequence and divide it by the previous term.

a) 2, 6, 18, 54, …

6/2 = 3
r = 3

b) 135, 45, 15, 5, …

45/135 = $0.\overline{3}$
r = $\frac{1}{3}$

c) 7, -14, 28, -56, …

-14/7 = -2
r = -2

2. Write an equation for the nth term of the geometric sequence. Using the equation, find a_6.

General Formula: $a_n = a_1 \bullet r^{n-1}$

a) 3, 6, 12, 24, …

$a_n = 3(2)^{n-1}$

$a_6 = 3(2)^{6-1}$
$a_6 = 3(2)^5$
$a_6 = 96$

The 6th term is 96

b) 0.375, 3, 24, 192, …

$a_n = 0.375(8)^{n-1}$

$a_6 = 0.375(8)^{6-1}$
$a_6 = 0.375(8)^5$
$a_6 = 12{,}288$

The 6th term is 12,288

c)

n	1	2	3	4
a_n	−1024	128	−16	2

$a_n = -1024(-0.125)^{n-1}$

$a_6 = -1024(-0.125)^{6-1}$
$a_6 = -1024(-0.125)^5$
$a_6 = 0.03125$

The 6th term is 0.03125