Geometric Sequences

1. Find the 10th term in each of these two geometric sequences:
   1. 1, 3, 9, 27, …
   2. 12, 18, 27, …
2. Show that the sequence 5, 10, 20, 40, … is geometric, and then
   1. Determine the general term .
   2. Find the 15th term of the sequence.
3. Show that the sequence 8, -6, 4.5, -3.375, … is geometric, and then
   1. Determine the general term .
   2. Find the 12th term of the sequence.
4. Show that the sequence 8, , 4, , … is geometric, and find its general term  in simplest form.
5. Find the general term  of a geometric sequence with  and .
6. Find the first term of 2, 6, 18, 54, … that exceeds 10,000.
7. Find the first term of the sequence 12, 6, 3, 1.5, … that is less than 0.0001
8. The population of an ant colony was observed and estimated to have 2,500 ants. The population is increasing by 12% each week. How many ants will there be after
   1. 12 weeks
   2. 20 weeks
9. The population of polar bears in an Alaskan wildlife reserve was 345 in 2005, but has been decreasing at an average rate of 3.5% per year since then.
   1. How many polar bears were there in 2012?
   2. How many would be expected to remain in the wildlife reserve in 2020?