Sequences

About These Problems

Sequences are just a series of numbers that follow a pattern. The most common sequences are geometric, arithmetic, and repeating. Geometric sequences are usually a multiple of their previous entry. For example 2,4,8,16,32 and 3,9,27,81 are geometric sequences. Arithmetic sequences just have a number added to them. For example take 2,4,6,8,10 or 10,21,32,43. Repeating sequences repeat or follow a pattern. 1,2,3,11,12,3,21,22,23 is a repeating sequence.

Question. Fill in the missing portion of the sequence below:

2,8,18,32,50,_,98

1. 72
2. 64
3. 75
4. 80
5. 84

Answer. 1: It is clear that the sequence is not arithmetic as the difference keeps increasing and its not geometric as there is not a function of the previous entry. But notice that if you divide every entry by 2 you get 1,4,9,16,25,_,49. What does that look like? This is just squares multiplied by 2. The missing answer is 6*6*2 = 72.