

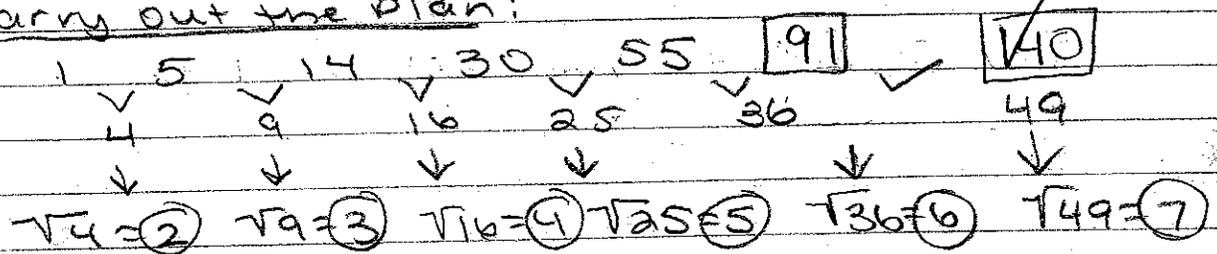
Section 1.2

(PS)

6) understand the problem: The problem is asking me to study the given figures and determine a sequence or pattern. Once I do this, I am asked to describe the 7th pyramid and determine the number of cannonballs. I am also asked if the sequence is arithmetic. Then I am to write an expression for the 20th figure's number of cannonballs.

Devise A plan: I am going to use the given figures to find a pattern.

carry out the plan:



I was able to find a pattern by calculating the differences between each set of numbers. I found that the second row of (4 9 16 25 36 49) had nothing directly in common. Then I looked closer and found the square roots of each number. The third row was (2 3 4 5 6 7). After I discovered this pattern I worked back up the rows by adding 49 to the previous figure's amount of cannonballs to get the amount used in the 7th figure.

A) There are 140 cannonballs in the seventh pyramid.

B) The definition of arithmetic sequence is that each new number is obtained from the previous number by adding a select number through. I believe that this problem does not form an arithmetic sequence because you do not get the answer by adding the same number to the figures. It is much more complicated than this.

c) $O_n = n^2 + O_{n-1}$

$O_{20} = 20^2 + O_{19}$

Looking Back: I was able to solve this problem by first finding the pattern and then figuring out how to use the pattern to find the next figures.