

Quiz 2

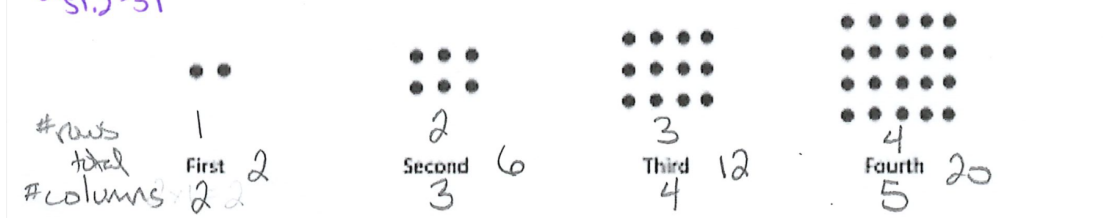
This is a two-stage quiz. During the first stage, use your knowledge & calculator to take this quiz. You have 15 min. In the second stage, you are now welcome to use your books, notes, and students in the class to retake the same quiz. You have 15 min. to write one solution (with everyone's name on it!) to be turned in for the group.

Show your work as you would for a colleague. Partial credit requires reasonable support.

1. The Greeks called the numbers represented by the following arrays of dots, oblong numbers.

Suggested Problem
§1.2 #31

1. The Greeks called the numbers represented by the following arrays of dots, oblong numbers.



Source: Suggested Problem, §1.2 #31

(a) [2] What the next oblong number? (You can either draw the figure or provide a number)

see pattern (1)
got it (1)
5 rows and 6 columns
 $\Rightarrow 30$ dots

Figure 1: Handwritten solution for part (a).

5 rows and 6 columns $\Rightarrow 30$ dots

- see pattern (1)
- got it (1)

(b) [2] Is the sequence of oblong numbers arithmetic, geometric, or neither? Justify your answer.

Pattern Activity #3 (b) [2] Is the sequence of oblong numbers arithmetic, geometric, or neither? Justify your answer. ratios, sequence: 2, 6, 12, 20
ratio analysis (1.5)
df. analysis (1.5)
definitions (1)
Differences: 2, 6, 12, 20
 $\Rightarrow$ not geometric
 $\Rightarrow$ not arithmetic
So neither

Figure 2: Handwritten solution for part (b).

Ratios: $2 \xrightarrow{\times 3} 6 \xrightarrow{\times 2} 12 \rightarrow 20 \Rightarrow$ not geometric

Sequence: 2, 6, 12, 20

Differences: $2 \xrightarrow{+4} 6 \xrightarrow{+6} 12 \xrightarrow{+8} 20 \Rightarrow$ not arithmetic

So neither.

Source: Pattern Activity #3

- ratio analysis (.5)
- difference analysis (.5)
- definitions (1)

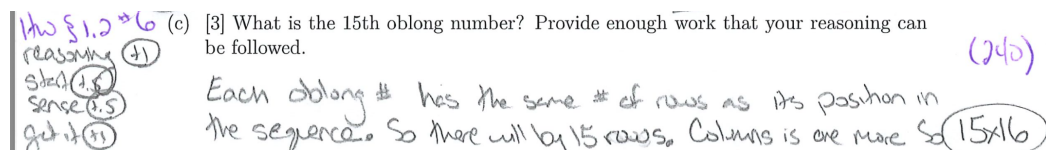


Figure 3: Handwritten solution for part (c).

- (c) [3] What is the 15th oblong number? Provide enough work that your reasoning can be followed.
Each oblong # has the same # of rows as its position in the sequence. So there will be 15 rows.
Columns is one more. So 15×16 .

(240)

Source: HW §1.2 #6

- reasoning (1)
- start (.5)
- sense (.5)
- got it (1)

- 3 Build a sequence that is geometric where all of the terms/entries/numbers below 10. Be sure to describe the sequence in words so the pattern is clear.

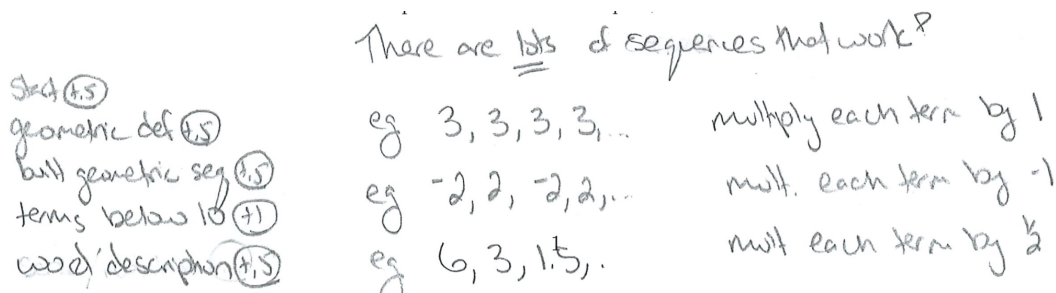


Figure 4: Handwritten solution for problem 2.

There are lots of sequences that work!

eg 3, 3, 3, 3, ... multiply each term by 1

eg -2, 2, -2, 2, ... mult. each term by -1

eg 6, 3, 1.5, ... mult each term by $\frac{1}{2}$

- start (.5)
- geometric def (.5)
- built geometric seq (.5)
- terms below 10 (1)
- word description (.5)