Key

Quiz 2

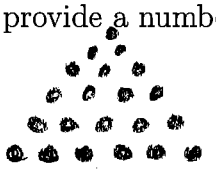
This is a two-stage quiz. During the first stage, use your knowledge & calculator to take this quiz. You have 15 min. In the second stage, you are now welcome to use your books, notes, and students in the class to retake the same quiz. You have 15 min. to write one solution (with everyone's name on it!)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

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

1. The sequence of numbers illustrated below are triangular numbers.

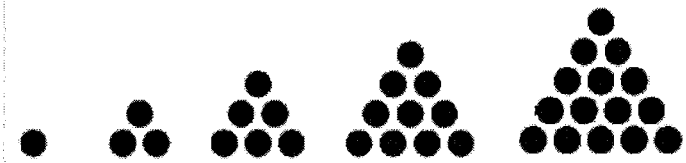
Patterns/Alg #4

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



or 1516

21



1 3 6 10 15

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

Neither (+.5)

definitions (+1) sense (+.5)

The differences are changing $(2, 3, 4, \ldots)$ so not arithmetic.

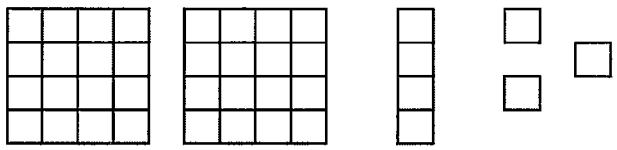
The ratios are changing $(3, 2, \frac{5}{3}, \ldots)$ so not geometric

Number Sense #4

2. Consider the number represented with two flats, one long, and three units shown below

(a) [2] Write the number of units in positional notation for the given base.

213_{four} (+1.5) (+.5)



(b) [2] Find the number of units, report in the Hindu-Arabic number system.

§3.1 #14

(+.5) { 2 flats + 1 long + 3 units → $32+4+3$ → recognize (+.5)

(+1) { $2(4\times4)+1(4)+3$ units

39 units

(c) [2] Write the number of units in a different number system of your choosing (eg. Egyptian, Babylonian, base 3, etc)

§3.1 #16

base 3

units 1
longs 3
flats 9
long flats 27

$39 = 27 + 12 = 27 + 9 + 3$

1 long flat + 1 flat + 1 long so 1110_{three}

Egyptian: 999 IIIII IIII

b/c 39 is less than 60 only need one digit so