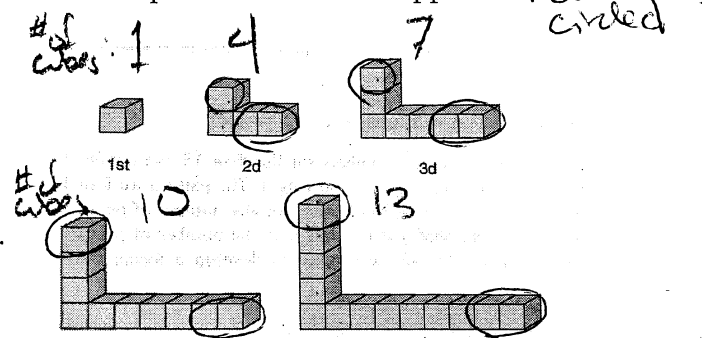# Quiz 2

Key

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.

new black circled

1. Consider the following sequence of figures:

# of cubes: 1   4   7

(a) [2] What type of sequence (arithmetic, geometric, recursive, or none of these) is formed by the number of cubes in successive figures? Briefly justify yourself.

(+1) { adding common term (3) each time → arithmetic (+.5)

# of cubes: 10   13

(b) [3] Find the number of cubes in the 10th figure.

We could do a table: adding 3 each time → 28

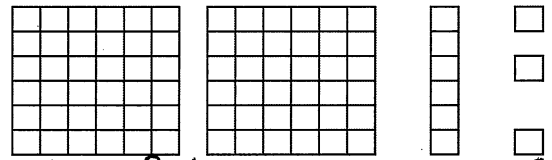| Figure	5	6	7	8	9	10
# cubes	13	16	19	22	25	28

OR

We could find an algebraic rule   # cubes = 3(figure #) − 2

So   # cubes for figure 10 = 3(10) − 2 = 28

2. Consider the number represented with 2 flats, 1 long, and 3 units shown below.

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

(+.5) { looks like base 6

(+.5) { 2 flats   + 1 long + 3 units

(+1) { 213 six

(b) [3] Translate the above number into another number system (Hindu-Arabic, Roman, Egyptian, Babylonian, a different base, etc). Clearly indicate which system.

Hindu-Arabic

(+.5) System matches work

2 flats + 1 long + 3 units

$2 \times 36 + 1 \times 6 + 3$ (+1.5)

$72 + 6 + 3 = 81$

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