Math 1350: 8-30-18

Q: What is the definition of 4+5?
Daily Check Solution: The number you arrive at when you start at 4 and count 5 more steps.

* Remember: In the grid system, the number 05 means
  0 rows and 5 places to the right.
  The number 23 means 2 complete rows and 3 places further to the right.

Ch. 1
Problem 13

Use the symbols: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, ⚫, ⬤

a) to write 12 in our number system?

Grid

00 01 02 03 04 05 06 07 08 09 00 00
10 11 12 13 14 15 16 17 18 19 10 10

How many symbols are in the above grid?

The grid is a square with 12 rows and 12 columns.
So, there are 12 \times 12 = 144 symbols.

Answer: 10
Hindu-Arabic | 12 fingered Alien
---|---
a) 12 | 10
b) 25 | 21
c) 143 | 00
   ➔ 00 is the 144th symbol in the grid
   but since we start with 00, 00 represents our 143
d) 142 | 01

e) 1,720 | 104
f) 200 | 148

5.) \(200 \Rightarrow 144 + 56 = 144 + 48 + 8\)

\[\begin{array}{c}
\text{4 rows in 000 grid} \\
\text{4 rows in 00 grid} \\
\text{8 places to the right of 0.}
\end{array}\]

So, 148 in Alien

6.) 346 = ??

1.) How many rows can we skip in the 000 grid?
   Each row has 144 symbols.

   \[346 \div 288 = 58\]

   2 complete rows

2.) How many rows can we skip in the 00 grid to reach 58?
   Each row has 12 symbols.

   \[58 - 48 = 10\]

   4 complete rows
(3) How many places do we move on the row of 12 symbols?

10, since 58 - 48 = 10.

What symbol in Alien represents the 10th symbol?

So, the answer is 240.

e.) 1720 = ?? Alien

Think about the 000 grid. How many symbols are in this grid?

1728 since there are 12 rows with 144 symbols each.

So, 12 x 144 = 1728.

So, the last digit in the 000 grid is 000 which is 1727 in our system.

1727 is 7 steps past 1720 so think backwards from 000

This equivalent to saying skip 11 rows in 000 grid, then skip 11 rows in 00 grid, then move 4 steps from the beginning of the row.

Homework has been altered

Throw out 1, 4, and 9!