

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	0♥	0♦	
10	11	12	13	14	15	16	17	18	19	1♥	1♦	
...	
90	91	...	...	...	...	...	...	...	...	...	9♦
♥0	♥1	...	...	...	...	...	...	...	...	♥♥	♥♦
♦0	♦1	♦♥	♦♦

12 ROWS

12 Columns

Answer: 10

How many symbols are in the above grid?

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

	Hindu-Arabic	12 fingered Alien
a.)	12	10
b.)	25	21
c.)	143	◇◇
d.)	142	◇◇
e.)	1,720	◇◇◇
f.)	200	148

→ ◇◇ is the 144th symbol in the grid but since we start with 00, ◇◇ represents our 143

$$f.) \quad 200 \rightarrow = 144 + 56 = 144 + 48 + 8$$

\downarrow \downarrow \downarrow
 1 row 4 rows in 8 places to the right of 0.
 in 000 00 grid

So, 148 in Alien

$$g.) \quad 346 = \overset{\text{Alien}}{??}$$

① How many rows can we skip in the 000 grid?
 * each row has 144 symbols *

$$346 - 288 = 58$$

\uparrow
 2 complete
rows

② How many rows can we skip in the 00 grid to reach 58?
 * each row has 12 symbols *

$$58 - 48 = 10$$

\downarrow
 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 24♥

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.

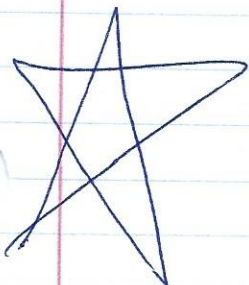
So, $12 \cdot 144 = 1728$

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, + 9!

