Math 123-02
Spring 2026
Dr. Lily Yen

Quiz 2

Show all your work

Name: _____
Number: _____
Signature: _____
Score: ___/10

Problem 1: Convert 67_{10} into base-2.

$$67 = 64 + 2 + 1 = 2^6 + 2^1 + 2^0 = 1000011_2$$

Score: /1

Problem 2: The following Mayan numeral has three places. Express it as a Hindu-Arabic numeral.

$= 4 \times (18 \times 20) + 8 \times 20 + 11 = 1611$

Score: /2

Problem 3: The following Kaktovik numeral has 4 places. Find its Hindu-Arabic numeral.

$= 17 \times 20^3 + 9 \times 20^2 + 12 \times 20 + 3 = 139\,843$

Score: /2

Problem 4: Convert $14\,766_{10}$ to a Babylonian numeral.

$14\,766 = 4 \times 60^2 + 6 \times 60 + 6 =$ 

Score: /2

Problem 5: Fire Horse likes to play with her model dragons. When she lines them up 7 in a row, she has 4 left over. When she lines them up 6 in a row, she finds her last row short of 1 dragon to complete a row. Suppose her collection of dragons contains at least 50, find the smallest possible number of dragons in her collection.

Say she has n rows of seven. Then the total number of dragons is $7n + 4$. Similarly, if she has m rows of six, the total is $6m - 1$. Therefore $7n + 4 = 6m - 1$, so $7n + 5 = 6m$. The solutions to this equation are

n	1	7	13	19	...
m	2	9	16	23	...
Total	11	**53**	95	137	...

This is another way of finding an answer compared to the solution to the last question in In-class assignment 2.

Score: /3