MATH 107
Winter 2022
HW 3: Due 01/05

"Civilization advances by extending the number of important operations which we can perform without thinking of them."
– Alfred North Whitehead

Problem 1. (10pt) Convert the following numbers to our traditional base-10 number system:

(a)

(b) $MMCCCXLII$

(c)

(d)

Problem 2. (10pt) Convert the following:

(a) 1756 to Egyptian

(b) 444 to Roman

(c) 24 to Babylonian

(d) 16 to Mayan

Problem 3. (10pt) Showing all your work, convert the following to base-10:

(a) 201_3

(b) 6005_7

(c) $\texttt{abc4}_{16}$

(d) 101011_2

Problem 4. (10pt) Showing all your work, express the following numbers into the indicated base, b:

(a) 76, $b = 3$

(b) 123, $b = 9$

(c) 12, $b = 2$

(d) 954, $b = 16$

Problem 5. (10pt) If you express the number 145,601 in base 16, how many digits would it have?