Each WA is worth **10 points** total. Work right on these pages. You can work together or see a tutor, but NEVER copy. This WA is for a grade, so dishonesty or cutting corners may earn a 0 for all involved.

1. *[1 pt]* What is a system of numeration?

2. *[1 pt]* Clearly define the term *place value*, as a mathematical concept.

3. *[2 pts - 0.5 each]* Consider the number $3,048,002$ for all four parts below.

   (a) Write it in word form.

   (b) Write it in expanded form without multiplication.

   (c) Write it in expanded form with multiplication.

   (d) Write it in expanded form with exponents.

4. *[1.5 pts]* Put these place values in decreasing order of size, listing them by their assigned letters (A, B, C, etc.) for easier writing. If you encounter ties, put an $=$ sign between them. Example: A, B, C=D, E would mean A is biggest, then B, then C and D are tied, then E.

   $A = 10^6$ $B = 100,000$ $C = 100$ million $D = 1$ billion $E =$ the position to the right of 1 million

5. *[4.5 pts]* Find THREE different numerals that each meet the set of clues below. Show supporting work
   - answers without work earn little to no credit.

   There are no digits in the millions position or higher.

   The sum of the digits in the thousands period equals the digit in the 10^1 position.

   The digits in the ones period are all odd.

   The digits in the hundreds and tens positions are NOT equal.

   There are no 5s in the numeral, but there are two 7s.

   In expanded form, the numeral includes $6 \cdot 100,000$.