INTD290: Number Systems in pre-Columbian Context

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1 How to Submit this Assignment

Once you answer the questions, take a picture of your work and convert it to a PDF. Submit the PDF to the assignment link on Moodle.

2 Introduction to Digits and Bases

[Asynchronous Lesson 0.1: corresponding video] In pre-Columbian scientific communities, we do not encounter the same systems of numbers as those used within the European scientific revolution. Based on the video 0.1, answer the following questions.

1. Imagine seeing four people standing under a tree. which of the following symbols describes the number of people under the tree?

   - A: 4
   - (B) ....
   - C: - - - -
   - D: *all of the above*

2. How many digits are there in the decimal system?

   - A: 8
   - (B) 10
   - C: 16
   - D: 20

3. How many digits would there be in a base-8 system?

   - (A): 8
   - B: 10
   - C: 16
   - D: 20

4. Write the number 255 as the sum of digits times powers of 10, as in video 0.1.

$$225 = 2 \times 10^2$$
$$+ \; 5 \times 10^1$$
$$+ \; 5 \times 10^0$$

3 Base-2, or Binary

[Asynchronous Lesson 0.2: corresponding video] We move forward with base-2 or binary number systems. Watch the video 0.2 and answer the following questions.

1. Convert the following binary numbers to decimal numbers:

   - 1000 $2^3 + 0^2 + 0^1 + 0^0$ 8
   - 1001   9
   - 1101   13

$$\overset{2^3\;2^2\;2^1\;2^0}{1000}$$
$$2^3 + 0 + 0 + 0 + 0 = 8$$

$$\overset{2^3\;2^2\;2^1\;2^0}{1001}$$
$$2^3 + 0 + 0 + 1 = 9$$

$$\overset{2^3\;2^2\;2^1\;2^0}{1101}$$
$$2^3 + 2^2 + 0 + 1 = 13$$

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