Ideas in Mathematics, Fall 2023, Weekly worksheet 1

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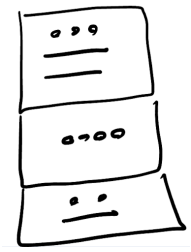
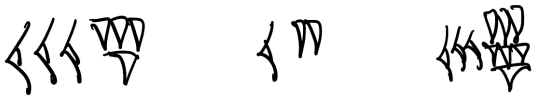
1. Convert the following numeral from Mayan hieroglyphic to decimal notation:

 = _____ in decimal notation

2. Convert the following numeral from Babylonian cuneiform to decimal notation:



= _____ in decimal notation

note there are three groups of numbers (digits) represented here.

3. The following numbers are written octal notation. Convert them to decimal notation. For example 321 in octal would be written as 209 because $3 \times 8 \times 8 + 2 \times 8 + 1 = 3 \times 64 + 2 \times 8 + 1 = 192 + 16 + 1 = 209$.

   (a) 17 in octal is equal to _____ in decimal notation.

   (b) 77 in octal is equal to _____ in decimal notation.

   (c) 1011 in octal is equal to _____ in decimal notation.

   (d) 3211 in octal is equal to _____ in decimal notation.

4. The following numbers are written binary (base 2) notation. Convert them to decimal notation. For example 1011 in binary would be written as 11 because $1 \times 2 \times 2 \times 2 + 0 \times 2 \times 2 + 1 \times 2 + 1 = 8 + 0 + 2 + 1 = 11$.

   (a) 11 in binary is equal to _____ in decimal notation.

   (b) 10110 in binary is equal to _____ in decimal notation.

   (c) 1111 in binary is equal to _____ in decimal notation.

   (d) 1011001 in binary is equal to _____ in decimal notation.