History of science in Latin America

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Async Assignment #1 1/10/21

2. Intro to Digits and bases

1. A - 4
2. B - 10
3. A - 8
4. $255 = 2 \times 10^2 + 5 \times 10^1 + 5 \times 10^0$

3. Base-2 or Binary

1.

$1000 = \boxed{8}$

$1 \times 2^3 + 0 \times 2^2 + 0 \times 2^1 + 0 \times 2^0$

8 0 0 0

$1001 = \boxed{9}$

$1 \times 2^3 + 0 \times 2^2 + 0 \times 2^1 + 1 \times 2^0$

8 0 0 1

$1101 = \boxed{13}$

$1 \times 2^3 + 1 \times 2^2 + 0 \times 2^1 + 1 \times 2^0$

8 4 1

$1111 = \boxed{15}$

$1 \times 2^3 + 1 \times 2^2 + 1 \times 2^1 + 1 \times 2^0$

8 4 2 1

$14/2 = 7$ r0 _ LSB

$7/2 = 3$ r1

$3/2 = 1$ r1

$1/2 = 0$ r1 MSB

$1110 = 14$

$1 \times 2^3 + 1 \times 2^2 + 1 \times 2^1 + 0 \times 2^0$

8 4 2 0

2. $32/2 = 16$ r0 $\boxed{100000 = 32}$

$1 \times 2^5 + 0 \times 2^4 + 0 \times 2^3 + 0 \times 2^2 + 0 \times 2^1 + 0 \times 2^0$

$16/2 = 8$ r0

$8/2 = 4$ r0

$4/2 = 2$ r0

$2/2 = 1$ r0

$1/2 = 0$ r1

$42/2 = 21$ r0 $\boxed{101010 = 42}$

$21/2 = 10$ r1

$10/2 = 5$ r0

$5/2 = 2$ r1

$2/2 = 1$ r0

$1/2 = 0$ r1

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Asinc Activity

3- Base 2

2. 11/2 = 5 r1 — 1011 = 11
5/2 = 2 r1
2/2 = 1 r0
1/2 = 0 r1

17/2 = 8 r1 — 10001 = 17
8/2 = 4 r0
4/2 = 2 r0
2/2 = 1 r0
1/2 = 0 r1

4 Base 16 - Hexadecimals

{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A (10), B (11), C (12), D (13), E (14), F (15)}

1. C

2. 255/16 = 15.9375 — 255 = FF

15 r 15

15 15

F F

5 Base-20 systems (Maya)

dig.t - 6 — "1" — "5" — dig.t 13

13 - 6 = 7

842 = 2 + 40 + 800 — 5 x 400 + 20 + 2 = 202

1. 20^0 = 1, 20 = A, 20^2 = AA — 1, 20, 400

C.AA+1

400 | 120 = 20 r0

20/20 = 1 r0

1/20 = 0 r1

100

10 11 12 13 14 15 16 17 18 19
A B C D E F G H I J

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Async Activity

5. Base-20

2. 25/20 = 1 r 5
1 = 15

1x20¹ + 5x20⁰
20 + 5 = 25

45/20 = 2 r 5
2/20 = 0 r 2
= 25

425 = 115

625/20 = 31 r 5
31/20 = 1 r 11 = b
0 r 1
= 185

425/20 = 21 r 5
21/20 = 1 r 1
1/20 = 0 r 1

3. 15 = ∴ 25 = ∴ 115 = ∴ 185 = ∴