ASyncronas lesson 0.1

1) Imagine Seeing four people Standing under a tree. which of the follows describes 4 people under a tree"

B: ....

2) How many digits are there in the decimal System?

B: 10

3) How many digits would there be being base 8 System

A 8

4) Write the # 255 as the sum of digits times powers of 10 as in video 0.1

$$255 = 2\times10^2 + 5\times10^1 + 5\times10^0$$

Base -2 or Binary

1) Convert the following binary # to decimal #'s

.1000 $1\times2^3 + 0\times2^2 + 0\times2^1 + 0\times2^0$

$8 + 0 + 0 + 0$

8

1001 $1\times2^3 + 0\times2^2 + 0\times2^1 + 1\times2^0$

$8 + 0 + 0 + 1$

9

• 1101 1×2^3 1×2^2 + 0×2^1 1×2^0

8 + 4 + 0 + 1

13

2) Convert the follows decimal #s into binary #s

• 32/2 = 16 r 0
16/2 = 8 r 0 100000
8/2 = 4 r 0
4/2 = 2 r 0
2/2 = 1 r 0
1/2 = 0 r 1

• 42/2 = 21 r 0 101010
21/2 = 10 r 1
10/2 = 5 r 0
5/2 = 2 r 1
1/2 = 0 r 1

• 11/2 = 5 r 1 = 1011
5/2 = 2 r 1
2/2 = 1 r 0
1/2 = 0 r 1

17/2 = 8 r 1 10001
8/2 = 4 r 0
4/2 = 2, 0
2/2 = 1, 0
1/2 = 0, 1

4 Base 16 or hexadecimals

1) How do you write 12 in hexadecimal

B : C

2 Lets Convert # 225 to a hexa decimal

1 2 3 4 5 6 7 8 9 A B C D
E F G H I J K

255/16 = 15, 15
15/16 0, 15

= FF

5 Base 20 Systems

1) a) $20^0 = 1$
$20^1 = 20$
$20^2 = 400$

b) 400/20 = 20, 0
20/20 1, 0
1/20 0, 1

= 100

401 ho : 20, 1 C 401
20/20 = 1, 0
1/20 = 1 = 10^1

2 Convert the following #s to your base 20 -548

25 - 15
45 - 25
425 - 115
625 - 1115

25/20 = 1r5
1/20 = 0r1
45/20
2/20 0r2
425/20 21r5
21/20 = 1r1
1/20 : 0r1

625/20 : 31r5
31/20 : 1r11
1/20 : 0r1

1115

3