Activity 0.1

Digits & Bases

1.) D. all of the above

2.) B. 10 digits

3.) A. 8 digits

4.) $255 = 2\times10^2 + 5\times10^1 + 5\times10^0$

Binary

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

$1000 = 8$

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

$1001 = 8+1 = 9$

$1101 = 1\times2^3 + 1\times2^2 + 0\times2^1 + 1\times2^0$

$1101 = 8+4+0+1 = 13$

$1111 = 1\times2^3 + 1\times2^2 + 1\times2^1 + 1\times2^0$

$1111 = 8+4+2+1 = 15$

2.) $32/2 = 16$ r0

$16/2 = 8$ r0

$8/2 = 4$ r0

$4/2 = 2$ r0

$2/2 = 1$ r0

$1/2 = 0$ r1

$100000 = 32$

2.) COMA. 42/2 = 21 r 0
21/2 = 10 r 1
10/2 = 5 r 0
5/2 = 2 r 1
2/2 = 1 r 0
1/2 = 0 r 1

101010 = 42

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

1011 = 11

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

10001 = 17

Base-16 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F

1.) B. C = 12

2.) 255/16 = 15 r 15
15/16 = 0 r 15

FF = 255

Base-20

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F, G, H, I, J, K

1.)

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

b.) $400_{(10)} = 1 \times 20^2 + 0 \times 20^1 + 0 \times 20^0$

$400_{(10)} = 100_{(20)}$

c.) $401_{(10)} = 1 \times 20^2 + 0 \times 20^1 + 1 \times 20^0$

$401_{(10)} = 101_{(20)}$

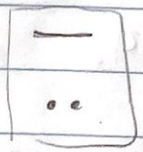
2.) $25_{(10)} = 1 \times 20^1 + 5 \times 20^0 = 15_{(20)}$

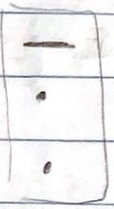
$45_{(10)} = 2 \times 20^1 + 5 \times 20^0 = 25_{(20)}$

$425_{(10)} = 1 \times 20^2 + 1 \times 20^1 + 5 \times 20^0 = 115_{(20)}$

$625_{(10)} = 1 \times 20^2 + B \times 20^1 + 5 \times 20^0 = 1B5_{(20)}$

3.) $25_{(10)} =$ 

$45_{(10)} =$ 

$425_{(10)} =$ 

$625_{(10)} =$