

## Practice Exercise Notational Systems

*Exercise 1:* Convert these numbers, represented in *binary*, to their *decimal* equivalents.

00000010 (binary) = (decimal)

00000111 (binary) = (decimal)

00001010. (binary) = (decimal)

*Exercise 2:* Convert these numbers, represented in decimal, to their binary equivalents.

### Decimal

3 (decimal) = (binary)

8 (decimal) = (binary)

14 (decimal) = (binary)

*Exercise 3:* Convert these numbers, represented in binary, to their hexadecimal equivalent. Don't convert to decimals if you can help with it! The goal is to move quickly from binary to decimal.

10 (binary) = (hexadecimal)

11110000 (binary) = (hexadecimal)

*Exercise 4:* Convert these numbers, represented in hexadecimal, to their binary equivalents. Don't convert to decimal if you can help it. The goal is to move directly from Hexadecimal to binary.

1A (hexadecimal) = (binary)

C3A0 (hexadecimal) = (binary)

## Practice Exercise Answers

**Exercise 1:** Convert these numbers, represented in *binary*, to their *decimal* equivalents.

00000010 (binary) = (2)

00000111 (binary) = (7)

00001010 (binary) = (10)

**Exercise 2:** Convert these *numbers*, represented in decimal, to their *binary* equivalents.

3 (decimal) = (11)

8 (decimal) = (1000)

14 (decimal) = (1110)

**Exercise 3:** Convert these *numbers*, represented in binary, to their *hexadecimal* equivalent. Don't convert to decimals if you can help with it! The goal is to move quickly from binary to decimal.

10 (binary) = (2)

11110000 (binary) = (F0)

**Exercise 4:** Convert these numbers, represented in *hexadecimal*, to their *binary* equivalents. Don't convert to decimal if you can help it. The goal is to move directly from Hexadecimal to binary.

1A (hexadecimal) = (0001101)

C3A0 (hexadecimal) = (1100 0011 1010 0000)

FOOF (hexadecimal)= (1111.0000.0000.1111)

HEX	DECIMAL	Binary
0	0	00000000
1	1	00000001
2	2	00000010
3	3	00000011
4	4	00000100
5	5	00000101
6	6	00000110
7	7	00000111
8	8	00001000
9	9	00001001
A	10	00001010
B	11	00001011
C	12	00001100
D	13	00001101
E	14	00001110
F	15	00001111

# CONVERTING HEX TO BASE 10

1	A	5	← HEX
256 Place	Sixteen Place	ONES Place	
$16^2$	$16^1$	$16^0$	
$16 \times 16 = 256$	16	1	

OR

$$1 \times 16^2 = 1 \times 256 = 256$$

$$A \times 16^1 = 10 \times 16 = 160$$

$$5 \times 16^0 = 5 \times 1 = 5$$

$$\text{Answer} = 421$$

HEX → A1 convert Hex to binary

Look at the table!

Q. CONVERT HEX F00F to binary

1 Break down into Quads

2.

F	0	0	F
1111	0000	0000	1111
$16^3 \times 15$			$16^0 \times 15$
= 61440			= 15

$$\begin{array}{r}
 61440 \\
 15 \\
 \hline
 61455
 \end{array}$$

## **Videos**

[What are Data Types?](#)

[What is Data Type & Its Types?](#)

[Fundamental Data Types](#)