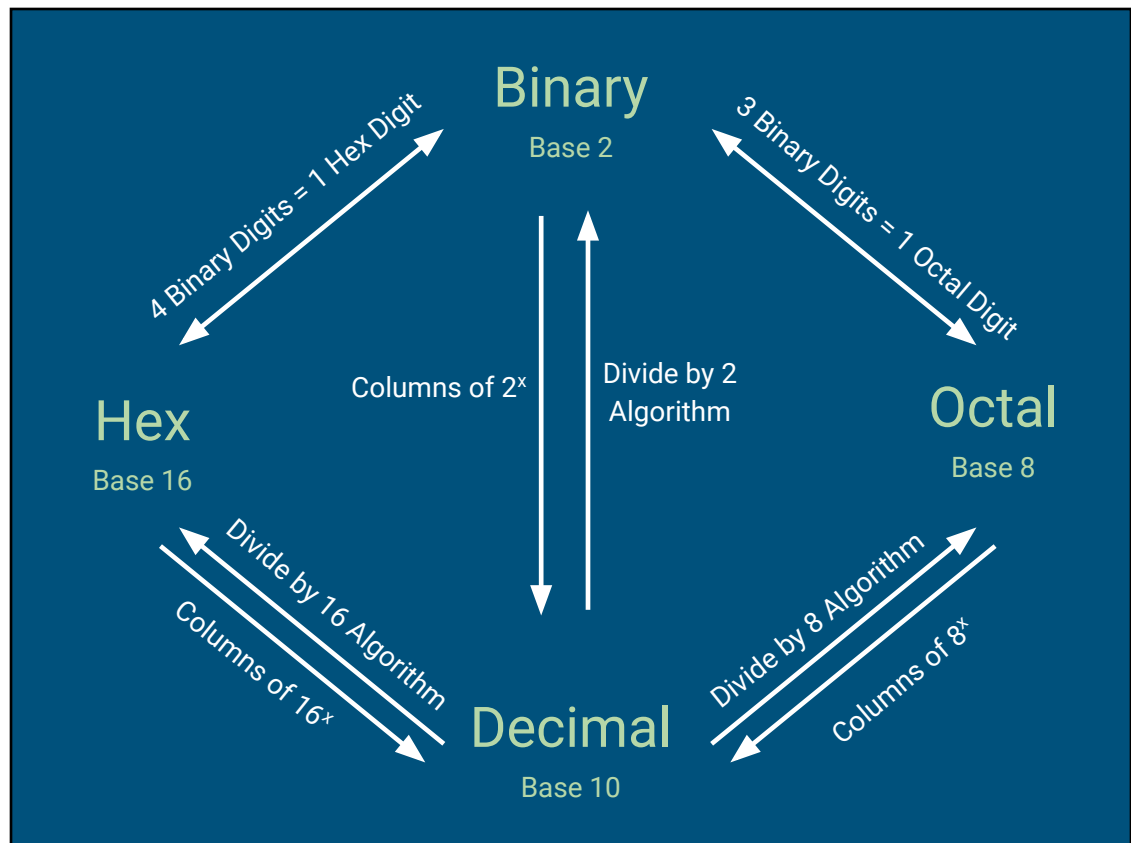


Number Systems Review

Binary, Octal and Hex!



Binary Point Numbers

To Binary from Decimal

$$0.4375 \quad * 2 = 0.875$$

$$0.875 \quad * 2 = 1.75$$

$$0.75 \quad * 2 = 1.5$$

$$0.5 \quad * 2 = 1.0$$

$$0.4375_{10} = 0.0111_2$$

To Decimal from Binary (use columns!)

$$1 (2^0) \quad 0.5 (2^{-1}) \quad 0.25 (2^{-2}) \quad 0.125 (2^{-3}) \quad 0.0625 (2^{-4})$$

$$0 \quad . \quad 0 \quad \quad \quad 1 \quad \quad \quad 1 \quad \quad \quad 1$$

$$= 0.25 + 0.125 + 0.0625$$

$$0.0111_2 = 0.4375_{10}$$

Two's Complement

Remember, a number is "negative" if being represented by its complement
IE: If it has a leading ONE (1) - we consider it a negative

To find a number's complement

1. Check that there is enough digits to ensure a leading zero (0)
2. Flip all the bits
3. Add one to the flipped number