Octal to Binary

* 34078 🡪 ?2
  + 111000001112
  + Group by base
  + 8 = 2^3 so group by 3
  + 16 = 2^3 so group by 4
  + 11011101010012 🡪 |0001|1011|1010|1001|2 🡪 |1|B|A|9|16 🡪 1BA9­16
  + 34078 🡪 |011|100|000|111|2
  + 1399 🡪 ?3
    - |001|010|100|9
    - 10101003
  + ABE16🡪?8
    - 1010|1011|1110|2 🡪 |101|010|111|110|2 🡪 52768

Converting Floating Points

* |10^0|10^-1|… so decimals are possible

|2^0| |2^-1| … etc

Binary 🡪 Decimal

* 0.100112 🡪 ?10
* .5+0.0625+0.03125= 0.5937510

Decimal 🡪Binary

* Go the opposite way
* .37510 ->.375\*2 = 0.75, take 0 ->.75\*2=1.5, take 1 -> .5\*2 = 1, take 1 🡪 0.011
* .7 -> binary;
  + .7\*2 = 1.4, take 0 keep 4
  + .4\*2 = .8. take 0, keep 8
  + .8 \* 2 = 1.6
  + .6\*2 = 1.2
  + .2\*2 = 0.4
  + Pattern repeats, 0.10110 repeating
  + 9.27 🡪1001.\_\_\_ 🡪.27\*2 = .54\*2 = 1.08, .08\*2 = .16\*2 = .32\*2 = .64\*2=1.2, .2\*2= .4\*2 = .8\*2 = 1.6, .6\*2 = 1.2, .2\*2 = .4\*2 = .8\*2 = 1.6
  + 1001.0100010**1100**, 1100 repeats
  + If you concatenate then it won’t equal exactly

Addition

* 1101011  
  +0101101
* Go right to left add normally, >1 means carry the 1
* 100011000, remember that you are taking the reciprocal of 2 s if you get 3 then it is 1 carry 1
* 11010+10011= 101101
* 1011+1101 is 1000 in 4-bit b/c it only has 4 bits
* 1100+0101=0001

**Read 7.1, incl 318/319, self check 1-8, r 7.1, r 7.2, r 7.6, e 7.1**

**Arrays + Lists**

* An array is an **object**
* That can store mult values of same type
* Reference to mult primitives/references
* Array : type[] name = new type[indices];
* Id if an array of ints has #10:
  + public boolean tenPres(int[] arr){
    - Boolean isTen = false;
    - for(int x = 0; x<arr.length;x++){
      * if(tenPres[x] == 10) { isTen = true;}
    - }
    - return isTen;
  + }