1) Conversion of base r numbers to decimal numbers: $(b_{n-1}b_{n-2}..b_1b_0)_r = \sum_{i=0}^{n-1} b_i * r^i$
2) Conversion of decimal numbers to base r numbers:
    a. Keep dividing the decimal number by r until the quotient is 0
    b. After each division the remainder becomes the next least significant digit
3) Conversion of binary numbers to octal:
    a. Divide binary number into groups of three
    b. Convert each group of three bits to an octal number
    c. If the leftmost group does not have three bits, pad it with 0's to get three bits
4) Conversion of binary numbers to hexadecimal:
    a. Divide binary number into groups of four
    b. Convert each group of four bits to a hexadecimal number
    c. If the leftmost group does not have four bits, pad it with 0's to get four bits
5) Conversion of octal numbers to binary numbers: Expand each octal digit into its three bit base 2 representation. For example, 46(base 8) = (100)(110) = 100110(base 2).
6) Conversion of hexadecimal numbers to binary numbers: Expand each hexadecimal digit into its four bit base 2 representation. For example, C9(base 16) = (1100)(1001) = 11001001(base 2).
7) Conversion of decimal fractions to binary fractions

```
Let x = the decimal number
print '.'
x = 2 * x
while x != 0 do
    if (x >= 1) then
            print 1
            x = x -1
    else
            print 0
    x = 2 * x
end while
```

8) Conversion of binary fractions to octal fractions: Same procedure as conversion of binary integers to octal integers
9) Conversion of binary fractions to hexadecimal fractions: Same procedure as conversion of binary integers to hexadecimal fractions