Floating Point HW- Arithmetic

41.

-1/4 = -2^-2 = -0.01

normalize the absolute value of this:

0.01 = 1.0 x 2^-2 = 1.0 x 2 ^-125-127

This means the sign = 1 the exponent is 125 which translates to 0111 1101 and the fraction is

000 0000 0000 0000 0000 0000

This means the representation is

1 0111 1101 000 0000 0000 0000 0000 0000

42.

-1/4 = -2^-2

-1/4 + (-1/4) = (-1.0 x 2^-2) + (1.0 x 2^-2) = -10 x 2^-2 = -1 x 2^-1

Now this simplifies to

-1/4 = -0.1 x 2^-1

Now adding the significands together,

-1 - .1 = -1.1

After three additions this is

-1.1 x 2^-1 adding -.1 x 2^-1 one more time to get -1.1 -.1 = -10.

The result is

-10 x 2^-1 = -1

4 = 2^2 = 1 x 2^2

To compute -1/4 x 4 we must add the exponents which come to 0.

Now multiplying by the significands 1.0 x 1.0 = 1.0.

The first number is negative while the second is positive, so the end result should be negative.

-1.0 x 2^0 = -1

43.

1/3 = .33 repeating.

1/3 is shown as 0.010101... infinitely. This means that we will represent it by 24 bits, and it follows the pattern

0101 0101 0101 0101 0101 0101