**Addition example**

43 + 0.34375

=> 0 10100 0101100000

+ 0 01101 0110000000

step 1: align radix points

shifting the mantissa LEFT by 1 bit DECREASES THE EXPONENT by 1

shifting the mantissa RIGHT by 1 bit INCREASES THE EXPONENT by 1

we want to shift the mantissa right, because the bits that

fall off the end should come from the least significant end

of the mantissa

-> choose to shift the .34375, since we want to increase it's exponent.

-> shift by 10100

- 01101

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00111 (7) places.

0 01101 0110000000 (original value)

0 01110 1011000000 (shifted 1 place)

(note that hidden bit is shifted into msb of mantissa)

0 01111 0101100000 (shifted 2 place)

0 10000 0010110000 (shifted 3 place)

0 10001 0001011000 (shifted 4 place)

0 10010 0000101100 (shifted 5 place)

0 10011 0000010110 (shifted 6 place)

0 10100 0000001011 (shifted 7 place)

step 2: add (don't forget the hidden bit for the 43)

0 10100 1.0101100000 (43)

+ 0 10100 0.0000001011

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0 10100 1.0101101011

step 3: normalize the result (get the "hidden bit" to be a 1).

result is

0 10100 0101101011