3.12				
Iteration	Step	Multiplier	Multiplicand	Product
0	Initial Values	001010	000000110010	000000000000
1	No Operation	001010	000000110010	000000000000
	Shift Left Multiplicand	001010	000001100100	000000000000
	Shift Right Multiplier	000101	000001100100	000000000000
2	Product+=Multiplicand	000101	000001100100	000001100100
	Shift Left Multiplicand	000101	000011001000	000001100100
	Shift Right Multiplier	000010	000011001000	000001100100
3	No Operation	000010	000011001000	000001100100
	Shift Left Multiplicand	000010	000110010000	000001100100
	Shift Right Multiplier	000001	000110010000	000001100100
4	Product+=Multiplicand	000001	000110010000	000111110100
	Shift Left Multiplicand	000001	001100100000	000111110100
	Shift Right Multiplier	000000	001100100000	000111110100
5	No Operation	000000	001100100000	000111110100
	Shift Left Multiplicand	000000	011001000000	000111110100
	Shift Right Multiplier	000000	011001000000	000111110100
6	No Operation	000000	011001000000	000111110100
	Shift Left Multiplicand	000000	110010000000	000111110100
	Shift Right Multiplier	000000	110010000000	000111110100

3.13			
Iteration	Step	Multiplicand	Product
0	Initial Values	01100010	0000000000010010
1	No Operation	01100010	0000000000010010
	Shift Right Product	01100010	0000000000001001
2	Upper Product+=Multiplicand	01100010	0110001000001001
	Shift Right Product	01100010	0011000100000100
3	No Operation	01100010	0011000100000100
	Shift Right Product	01100010	0001100010000010
4	No Operation	01100010	0001100010000010
	Shift Right Product	01100010	0000110001000001
5	Upper Product+=Multiplicand	01100010	0110111001000001
	Shift Right Product	01100010	0011011100100000
6	No Operation	01100010	0011011100100000
	Shift Right Product	01100010	0001101110010000
7	No Operation	01100010	0001101110010000
	Shift Right Product	01100010	0000110111001000
8	No Operation	01100010	0000110111001000
	Shift Right Product	01100010	0000011011100100

3.14				
Hardware				
	Addition (Per Iteration)	Shifts (Per Iteration)	Test (Per Iteration)	Total (8 Iterations)
Time Units	4	4	4	96
Hardware				
	Addition (Per Iteration)	Shifts (Per Iteration)	Test (Per Iteration)	Total (8 Iterations)
Time Units	4	8	4	128

3.18				
Iteration	Step	Quotient	Divisor	Remainder
0	Initial Values	000000	010001000000	000000111100
1	Remainder-=Divisor	000000	010001000000	101111111100
	Remainder+=Divisor, Shift Left Quotient, Quotient+=1	000000	010001000000	000000111100
	Shift Divisor Right	000000	001000100000	000000111100
2	Remainder-=Divisor	000000	001000100000	111000011100
	Remainder+=Divisor, Shift Left Quotient, Quotient+=1	000000	001000100000	000000111100
	Shift Divisor Right	000000	000100010000	000000111100
3	Remainder-=Divisor	000000	000100010000	111100101100
	Remainder+=Divisor, Shift Left Quotient, Quotient+=1	000000	000100010000	000000111100
	Shift Divisor Right	000000	000010001000	000000111100
4	Remainder-=Divisor	000000	000010001000	111110110100
	Remainder+=Divisor, Shift Left Quotient, Quotient+=1	000000	000010001000	000000111100
	Shift Divisor Right	000000	000001000100	000000111100
5	Remainder-=Divisor	000000	000001000100	111111111000
	Remainder+=Divisor, Shift Left Quotient, Quotient+=1	000000	000001000100	000000111100
	Shift Divisor Right	000000	000000100010	000000111100
6	Remainder-=Divisor	000000	000000100010	000000011010
	Shift Left Quotient, Quotient+=1	000001	000000100010	000000011010

	Shift Divisor Right	000001	000000010001	000000011010
7	Remainder-=Divisor	000001	000000010001	000000001001
	Shift Left Quotient, Quotient+=1	000011	000000010001	000000001001
	Shift Divisor Right	000011	000000001000	000000001001

3.22		
Sign	Exponent	Mantissa
0	00011000	01000000000000000000
1	-123	1.25
Number	1.23E-31	

3.23		
Sign	Exponent	Mantissa
1	133	1.01953125
0	10000101	00000101000000000000000
Number	01000010100000101000000000000000	

3.29		
Number	Integer	Float
26.125	26	.125
	11010	.001
	26.125 = 1.1010001 * 2^4	
	Exponent = 15 + 4 = 19 = 10011	
	Mantissa = 1010001000	
	Sign = 0	
	Total = 0100111010001000	
0.415039063	0	.4150390625
	00000	.0110101001
	.4150390625 = 1.10101001 * 2^-2	
	Exponent = 15 - 2 = 13 = 01101	
	Mantissa = 1010100100	
	Sign = 0	
	Total = 0011011010100100	
Addition		
Exponent Difference	19 – 13 = 6	
26.125 Significand	1010001000	
0.4150390625 Significand	0000001010	
Sum	1010010010 = 1 + .5 + .125 + .015625 + .001953125 = 1.642578125	
Exponent	19 – 0 = 19	
Sign	0 + 0	
Total	Total = 0100111010010010	
Sign	Exponent	Mantissa
1	4	1.642578125
Number	1.642578125 * 2^4 = 26.28125	