(a)
$$1110$$
 (b) 1010 (c) 11100 (d) 10000 (e) 10101 (f) 11101 (g) 10111 (h) 11111

(a) 1110 (b) 1010 (c) 11100 (d) 10000 (e) 10101 (f) 11101 (g) 10111 (h) 11111

(a) 1110 (b) 1110 (c) 11100 (d) 11100 (e) 11101 (f) 11111

(g) 1110 (g) 1110 (g) 1110 (g) 11111 (h) 11111

(g) 1110 (g) 1110 (g) 1110 (g) 11111 (

 $(c) 2^2 + 2^1 + 2^0 = 7$

(9) 23 + 2 + 2 st 2 st 2 st 30 () () () say ve | say suppor young 3

(g)
$$2^4 \cdot 2^4 \cdot 2^4 + 2^4 \cdot 2^4 \cdot 2^4 \cdot 2^4 \cdot 2^5 \cdot 2^{-1} \cdot 2^{$$

(a) 17 (b) 35 (c) 49 (d) 68 (e) 81 (f) 114 (9) 132

113.0625

(h) 205

- 97.65625

10. Generate binary sequence for each decimal sequence: (e) 64 through 75 (c) 16 through 31 (d) 32 through 63 (b) 8 Harrough 15 (a) O through 7 6 bits 52= 110100 ® 5 bits 64= 1000000 4 bits (A) 3 bits 32= 100000 (B) 16= 10000 65= 1000001 53= 110101 8=1000 33= 100001 0 = 000 66=1000010 17=10001 54= 110110 34= 100010 18=10010 35= 100011 67= 1000011 55= 110111 9= 1001 1 = 001 19=10011 36= 100100 68=1000100 56= 111000 37= 100 101 20=10100 57=111001 38 = 100110 21=10101 69=1000101 10=1010 58= 111010 2=010 39=100111 22=10110 70= 1000110 40= 10 1000 59= 111011 41=10 1001 23=10111 60= 111100 71- 1000111 11= 1011 3 0 11 24=11000 42=101010 72=1001000 43= 101011 61=111101 25= 11 001 44=10 11 00 26=11010 73: 1001001 4= 100 62=111110 12 = 1100 45= 10 11 01 27= 11011 74=1001010 46=101110 63=111111 13= 1101 5= 101 28=11100 47=101111 75= 100 1011 48=110000 14=1110 29=11101 6= 110 49= 110001 30=11110 15=1111 50= 11 0010 7=111 31=11111 51=110011

Convert each desimal number to binary using repeated division by 2.3

Cal IF (a) 21 (a) 34 (2) 40 (4) 59 (5) 59 (6) 75

(a) 15 (b) 21 (c) 25 (d) 34 (2) 40 (4) 59 (5) 59 (6) 75

(b)
$$\frac{1}{3}$$
 = $\frac{1}{2}$ = $\frac{1$

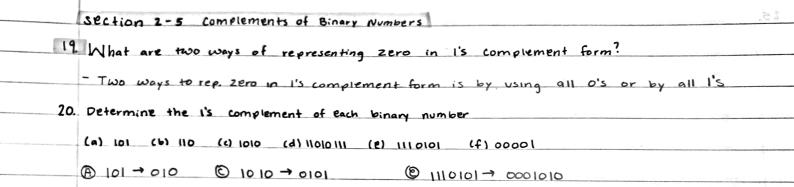
Section 2-4 Binary Arithmetic

15. Add the binary numbers:

(a) 11+01 (b) 10+10 (c) 101+11 (d) 111+10 (e) 1001+101 (f) 1101+1011 (F?)

(a)
$$\frac{11}{100} + \frac{3}{100} + \frac{10}{2} + \frac{2}{100} + \frac{10}{2} + \frac{10}{1000} + \frac{2}{8} + \frac{10}{1001} + \frac{2}{9}$$

(b) $\frac{100}{1001} + \frac{9}{1000} + \frac{1000}{1000} + \frac{100$



28. Determine the decimal yalus	-	in the 2's complement form
(a) [00 1 00 (b) Oillo 100		
		(- 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
- 2 + 2 + 2 + 2 + 2°	+ 2 + 2 + 2 + 2	-27+2+2+2+2+2+2
- 128+ 16+8+1 = -103	+64+32+16+4=+116	-128+ 32+16+8+4+2+1=+65
29. Express each of the following s		
floating-point format: (a) อ์เเ เเ10000 101011 (b) <u>T</u> ooi	100000 11000
A 1.11110000 1010 11 × 2	141- 1000 1101	
1111 0000 0 1010 11 00 0000000	, 1000 1101 , 0	All and the second seco
@ 1.10000011000 12"	130 = 1000 1010	
1.10000011000000000		