

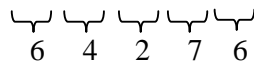
1.5) a.  $14/2 = 5 \rightarrow 1r+4 = 2(5) = 10 \rightarrow r = 6$   
 b.  $54/4 = 13 \rightarrow 5r + 4 = 4(r+3) \rightarrow (5-4)r = 12-4 \rightarrow r = 8$   
 c.  $24 + 17 = 40 \rightarrow 2r + 4 + r + 7 = 4r + 0 \rightarrow 3r + 11 = 4r \rightarrow r = 11$

1.7)  $10110.0101_2 = 2^4 + 2^2 + 2^1 + 2^{-2} + 2^{-4} = 16 + 4 + 2 + 0.25 + 0.0625 = 22.3125_{10}$

$16.5_{16} = 16 + 6 + (5/16) = 22.3125$

$26.24_8 = 2(8) + 6 + (2/8) + (4/64) = 22.3125$

1.9)  $68BE_{16} = 0110100010111110_2 = 64276_8$



1.18) a. 
$$\begin{array}{r} 11011 \rightarrow 11011 \\ - 11001 \rightarrow \underline{+00111} \\ \hline 100010 \end{array}$$

b. 
$$\begin{array}{r} 110100 \rightarrow 110100 \\ -010101 \rightarrow \underline{+101011} \\ \hline 1011111 \end{array}$$

c. 
$$\begin{array}{r} 001011 \rightarrow 001011 \\ -110000 \rightarrow \underline{+010000} \\ \hline 011011 \end{array}$$

d. 
$$\begin{array}{r} 101010 \rightarrow 101010 \\ -101011 \rightarrow \underline{+010101} \\ \hline 111111 \end{array}$$

Answer  $\rightarrow -100101$       Answer  $\rightarrow -000001$

1.20)  $+61 \rightarrow 00111101$       and  $+27 \rightarrow 00011011$

$-61 \rightarrow 11000011$       and  $-27 \rightarrow 11100101$

a. 
$$\begin{array}{r} +27 \quad 00011011 \\ +(-61) \quad \underline{11000011} \\ \hline 11011110 \end{array}$$

b. 
$$\begin{array}{r} -27 \quad 11100101 \\ +(+61) \quad \underline{00111101} \\ \hline 100100010 \end{array}$$

c. 
$$\begin{array}{r} -27 \quad 11100101 \\ +(-61) \quad \underline{11000011} \\ \hline 110101000 \end{array}$$

Answer  $-00100010 = -34$       Answer  $= +34$       Answer  $= -01011000 = -88$

- 1.29) 4A  $\rightarrow 0100 1010 = \mathbf{J}$   
 EF  $\rightarrow 1110 1111 = \mathbf{o}$   
 68  $\rightarrow 0110 1000 = \mathbf{h}$   
 6E  $\rightarrow 0110 1110 = \mathbf{n}$   
 20  $\rightarrow 0010 0000 = \mathbf{sp}$   
 C4  $\rightarrow 1100 0100 = \mathbf{D}$   
 EF  $\rightarrow 1110 1111 = \mathbf{o}$   
 E5  $\rightarrow 1110 0101 = \mathbf{e}$

The parity used is odd parity.

1.34)

