

H/w ↑

2-2

6.

- a)  $1110 = 14$
- b)  $1010 = 10$
- c)  $1100 = 12$
- d)  $1000 = 8$
- e)  $10101 = 21$
- f)  $11101 = 29$
- g)  $10111 = 23$
- h)  $11111 = 31$

8.

- a) 3
- b) 7
- c) 15
- d) 31
- e) 63
- f) 127
- g) 255
- h) 511
- i) 1023
- j) 2047

10.

- a)  $0000 \rightarrow 0111$
- b)  $1000 \rightarrow 1111$
- c)  $10000 \rightarrow 11111$
- d)  $100000 \rightarrow 111111$
- e)  $1000000 \rightarrow 1001001$

$$2x-3$$

13.

$$a) \begin{array}{c} \sqrt{15} \\ \sqrt{7} \\ \sqrt{3} \\ \sqrt{1} \end{array} \begin{array}{c} 1 \\ 1 \\ 1 \\ 1 \end{array}$$

$$b) \begin{array}{c} 21/2 \\ 10/2 \\ 5/2 \\ 2/2 \\ 1 \end{array} \begin{array}{c} 1 \\ 0 \\ 1 \\ 0 \\ 1 \end{array}$$

$$c) \begin{array}{c} 28/2 \\ 14/2 \\ 7/2 \\ 3/2 \\ 1/2 \end{array} \begin{array}{c} 0 \\ 0 \\ 1 \\ 1 \\ 1 \end{array}$$

$$d) \begin{array}{c} 21/2 \\ 17/2 \\ 8/2 \\ 4/2 \\ 2/2 \\ 1/2 \end{array} \begin{array}{c} 0 \\ 1 \\ 0 \\ 0 \\ 0 \\ 1 \end{array}$$

$$e) \begin{array}{c} 40/2 \\ 20/2 \\ 10/2 \\ 5/2 \\ 2/2 \\ 1 \end{array} \begin{array}{c} 0 \\ 0 \\ 0 \\ 1 \\ 0 \\ 1 \end{array}$$

$$f) \begin{array}{c} 54/2 \\ 29/2 \\ 14/2 \\ 7/2 \\ 3/2 \\ 1/2 \end{array} \begin{array}{c} 1 \\ 1 \\ 0 \\ 1 \\ 1 \\ 1 \end{array}$$

$$g) \begin{array}{c} 65/2 \\ 32/2 \\ 16/2 \\ 8/2 \\ 4/2 \\ 2/2 \\ 1/2 \end{array} \begin{array}{c} 1 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{array}$$

$$h) \begin{array}{c} 73/2 \\ 36/2 \\ 18/2 \\ 9/2 \\ 4/2 \\ 2/2 \\ 1/2 \end{array} \begin{array}{c} 1 \\ 0 \\ 0 \\ 1 \\ 0 \\ 0 \\ 1 \end{array}$$



$$\begin{array}{r} 010 \\ 101 \\ 1 \\ \hline 110 \end{array}$$

2-4

$$\begin{array}{r} a) \quad 11 \\ + 01 \\ \hline 100 \end{array}$$

$$\begin{array}{r} c) \quad 1101 \\ + 011 \\ \hline 1000 \end{array}$$

$$\begin{array}{r} e) \quad 1001 \\ + 0101 \\ \hline 1110 \end{array}$$

$$\begin{array}{r} b) \quad 101 \\ + 10 \\ \hline 100 \end{array}$$

$$\begin{array}{r} d) \quad 111 \\ + 110 \\ \hline 1001 \end{array}$$

$$\begin{array}{r} f) \quad 1101 \\ + 1011 \\ \hline 11000 \end{array}$$

2-5

(19)

00000000  
11111111

2-6

(28)

$$\begin{array}{r} a) \quad 10011001 \\ 01100110 \\ + 1 \\ \hline 01100111 \end{array}$$

$$\begin{array}{r} b) \quad 0110100 \\ 10001011 \\ + 1 \\ \hline 10001100 \end{array}$$

$$\begin{array}{r} c) \quad 10111111 \\ 01000000 \\ + 1 \\ \hline 01000001 \end{array}$$