

1a. 10011011_2

$$=2^7+2^4+2^3+2+1$$

$$=128+16+8+2+1$$

$$=144+10+1$$

$$=155_{10}$$

1b. 1101101_2

$$=2^6+2^5+2^3+2^2+1$$

$$=64+32+8+4+1$$

$$=96+12+1$$

$$=108+1$$

$$=109_{10}$$

1c. $3A8_{16}$

$$=3 \cdot 16^2 + 10 \cdot 16 + 8$$

$$=768 + 160 + 8$$

$$=936$$

1d. 2214_5

$$=2 \cdot 5^3 + 2 \cdot 5^2 + 5 + 4$$

$$=250 + 50 + 5 + 4$$

$$=309$$

2a. 69_{10}

$$69/2=34 \quad 1$$

$$34/2=17 \quad 0$$

$$17/2=8 \quad 1$$

$$8/2=4 \quad 0$$

$$4/2=2 \quad 0$$

$$2/2=1 \quad 0$$

$$1/2=0 \quad 1$$

$$=1000101$$

2b. 485_{10}

$$485/2=242 \quad 1$$

$$242/2=121 \quad 0$$

$$121/2=60 \quad 1$$

$$60/2=30 \quad 0$$

$$30/2=15 \quad 0$$

$$15/2=7 \quad 1$$

$$7/2=3 \quad 1$$

$$3/2=1 \quad 1$$

$$1/2=0 \quad 1$$

$$=111100101$$

2c. $6D1A_{16}$

$$6=0110, D=13=1101, 1=0001, 11=1011$$

$$=0110110100011011$$