

## CMSI2210 CW#1 Binary<>Decimal

Convert  $101_2$  to decimal

$$5 \text{ Y}$$

Convert  $1010101_2$  to decimal

$$85 \text{ Y}$$

Convert  $0101010_2$  to decimal

$$2 + 8 + 32 = 42 \text{ Y}$$

Convert  $11111111_2$  to decimal

$$\text{NOT: } 2^8 = 256$$

$$1 + 2 + 4 + 8 + 16 + 32 + 64 + 128 = 127 + 128 = 255 \text{ Y}$$

Convert  $1100110011001101_2$  to decimal

$$\text{NOT: } 52, 529$$

$$52,429 \text{ Y}$$

Convert  $11111111111111111111_2$  to decimal

$$\text{NOT: } 1,048,569$$

$$\sum_{i=0,19} (2^i) = 1,048,575 \text{ Y}$$

Convert  $111100001111_2$  to decimal

$$7+8+2^8+2^9+2^{10}+2^{11}$$

$$15 + 3840 = 3855 \text{ Y}$$

Convert  $100000000000_2$  to decimal

$$2^{11} = 2048 \text{ Y}$$

Convert  $101010111100110111101111_2$  to decimal

$$11,259,375 \text{ Y}$$

Convert  $5421_{10}$  to binary

$$1010100101101 \text{ Y}$$

Convert  $80_{10}$  to binary

$$80 \% 2 = 0$$

$$40 \% 2 = 0$$

$$20 \% 2 = 0$$

$$10 \% 2 = 0$$

$$5 \% 2 = 1$$

$$2 \% 2 = 0$$

$$1 \% 2 = 1$$

NOT: 0000101

1010000 (Top is least significant bit) Y

Convert  $12345_{10}$  to binary

$$12345 \% 2 = 1$$

$$6172 \% 2 = 0$$

$$3086 \% 2 = 0$$

$$1543 \% 2 = 1$$

$$771 \% 2 = 1$$

$$385 \% 2 = 1$$

$$192 \% 2 = 0$$

$$96 \% 2 = 0$$

$$48 \% 2 = 0$$

$$24 \% 2 = 0$$

$$12 \% 2 = 0$$

$$6 \% 2 = 0$$

$$3 \% 2 = 1$$

11000000111001 Y

Convert  $15_{10}$  to binary

$$15 \% 2 = 1$$

$$7 \% 2 = 1$$

$$3 \% 2 = 1$$

$$1 \% 2 = 1$$

1111 Y

Convert  $65535_{10}$  to binary

$$65535 \% 2 = 1$$

$$32767 \% 2 = 1$$

$$16383 \% 2 = 1$$

$$8191 \% 2 = 1$$

$$4095 \% 2 = 1$$

$$2047 \% 2 = 1$$

$$1023 \% 2 = 1$$

$$511 \% 2 = 1$$

$$255 \% 2 = 1$$

$$127 \% 2 = 1$$

$$63 \% 2 = 1$$

$$31 \% 2 = 1$$

$$15 \% 2 = 1$$

$$7 \% 2 = 1$$

$$3 \% 2 = 1$$

1111111111111111 Y

Convert  $32767_{10}$  to binary

$$32767 \% 2 = 1$$

$$16383 \% 2 = 1$$

$$8191 \% 2 = 1$$

$$4095 \% 2 = 1$$

$$2047 \% 2 = 1$$

$$1023 \% 2 = 1$$

$$511 \% 2 = 1$$

$$255 \% 2 = 1$$

$$127 \% 2 = 1$$

$$63 \% 2 = 1$$

$$31 \% 2 = 1$$

$$15 \% 2 = 1$$

$$7 \% 2 = 1$$

$$3 \% 2 = 1$$

111111111111111 Y