

## REVIEW #2 - NUMBER SYSTEMS

- Solve for  $X_2$ :  $X_2 = 1074_8 + 213_{16}$   

$$\begin{array}{r} 11 \\ 100010011 \\ + 100111100 \\ \hline 1000100111 \end{array}$$
- What hexadecimal number when increased by  $64_{16}$  equals  $532_{16}$ ?  

$$\begin{array}{r} 012022 \\ 1010010010 \\ - 1100100 \\ \hline 1001100110 \\ \hline 4CE_{16} \end{array}$$
- Convert each expression to binary. Ignoring leading zeros, which binary answers contain more 1's than 0's? List all of them.  
 A.  $42_8$   $100010$     B.  $3A_{16}$   $111010$     C.  $92_{10}$   $101100$     D.  $1011_2$     E.  $214_8$   $010001100$
- Solve for  $X_{16}$ :  $X_{16} = 11_2 + 26_8 - 15_{10}$   

$$3 + 22 - 15 = 3 + 7 = 10$$
  
 $A_{16}$
- Given  $343_8$  and  $11101101_2$   
 Determine:  
 A) which is the larger  $11101101_2$   
 B) Calculate the positive difference in hexadecimal.  

$$\begin{array}{r} 11101101 \\ - 11100011 \\ \hline 00001010 = A_{16} \end{array}$$
- Convert  $B2A3_{16}$  to octal.  

$$\begin{array}{r} 101001010100011 \\ \hline 131243 \end{array}$$
- Convert  $473_8$  to hexadecimal.  

$$\begin{array}{r} 100111011 \\ \hline 13B \end{array}$$
- How many more 1's are there in the binary representation of  $2F3_{16}$  than in the binary representation of  $16E_{16}$ ?  

$$\begin{array}{r} 101110011 \\ - 101101110 \\ \hline 1 \text{ more} \end{array}$$
- Solve for  $X_{16}$ :  $100101_2 + X_{16} = 1101101010_2$   

$$\begin{array}{r} 1101101010 \\ - 100101 \\ \hline 1101000101 = 345_{16} \end{array}$$
- Determine the number of 1's in the binary representation of the solution of the following expression:  

$$(743_8 - AF_{16} + 110100101000_2) * 256_{10} = 941056_{10}$$

$$\begin{array}{r} 2048 \quad 256 \quad 32 \quad 8 \\ 483 - 175 \quad 3368 \quad \times 256 \\ \hline 2^{19} \quad 2^{17} \\ 11100101110000000000 \end{array}$$

### ANSWERS:

- ✓ 1.  $10001001111_2$
- ✓ 2.  $4CE_{16}$
- ✓ 3. B, C, and D
- ✓ 4.  $A_{16}$
- ✓ 5.
  - a.  $11101101_2$
  - b.  $A_{16}$
- ✓ 6.  $131243_8$
- ✓ 7.  $13B_{16}$
- ✓ 8. 1
- ✓ 9.  $345_{16}$
- ✓ 10. 7