NAMES: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| Break the decimal into its components as shown.  2,308 = 2\*10^3 + 3\*10^2 + 8\*10^0  = 2000 + 300 + 8  71,030 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_    100,508 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Break the binary into its components as shown.  1011 = 2^3 + 2^1 + 2^0  = 8 + 2 + 1 = 11  10110 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  100101 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| Convert the decimal into binary. SHOW YOUR WORK.    Remember this: 128 64 32 16 8 4 2 1  Algorithm  start\_value  while start\_value not 0:  Put “1” at location of largest value < start\_value  Start\_value = start\_value - that value  201 = 128 + 64 + 8 + 1 = 1100 1001  ^ 201 - 128 = 73 - 64 = 9 - 8 = 1  113 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  57 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Convert the binary into 2 hex digits, by first converting to decimal. SHOW YOUR WORK.  Hex: a=10, b=11, c=12, d=13, e=14, f=15  1100 1001. 1100 = 12 and 1001 = 9. HEX = c9  0110 1101 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  1111 0011 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

Add these binary numbers together. **Write any carry’s above the numbers**. Show the results in binary. THEN show them in decimal and hexadecimal forms.

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| 1 1 1 0 0 1  + 1 1 1 0  =========  Sum in Decimal: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Sum in Hexadecimal: \_\_\_\_\_\_\_\_\_\_\_\_\_ | 1 1 0 1 1 1  + 1 1 0 1  =========  Sum in Decimal: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Sum in Hexadecimal: \_\_\_\_\_\_\_\_\_\_\_\_\_ |