

Name: _____

CS 0447 – Worksheet

You have 15 minutes to complete this exercise.

For each datatype, translate each 8-bit byte to base 10 or English:

Data Type	0x88 Binary: 1000 1000	0xF8 Binary: 1111 1000 = (128+64+32+16+8) ₁₀	0x30 Binary: 0011 0000 = (32+16) ₁₀
Unsigned	136 ₁₀	248 ₁₀	48 ₁₀
Signed Magnitude	-8 ₁₀	-120 ₁₀	48 ₁₀
One's complement	~Data = 0111 0111 ₂ , which implies ($\Rightarrow$) Data = -119 ₁₀ .	~Data = 0000 0111 ₂ , which implies ($\Rightarrow$) Data = -7 ₁₀	48 ₁₀
Two's complement	~Data = 0111 0111 ₂ . Thus, ~Data + 1 = 0111 1000 ₂ , $\Rightarrow$ Data = -120 ₁₀	~Data = 0000 0111 ₂ . Thus, ~Data + 1 = 0000 1000 ₂ , $\Rightarrow$ Data = -8 ₁₀	48 ₁₀
ASCII	Not Applicable	Not Applicable	'0'