

- 1) Convert -50 to an 8 bit two's complement number

50 = 0011 0010

Flip the bits = 1100 1101

Add 1 = 1100 1110

- 2) Convert 1100 0100 from 8-bit two's complement to a decimal number

Sign bit = 1 so number is negative

Flip the bits – 0011 1011

Add 1 – 0011 1100

Convert = - (32+16+8+4) = -60

- 3) Convert -85.0 to single precision floating point (32-bit)

Sign bit = 1

85 = 0101 0101

Move decimal point to left places = 1.010101×2^6

Exponent = $127+6 = 133 = 1000\ 0101$

Answer = 1 1000 0101 010 1010 0000 0000 0000 0000

- 4) Convert 0 1000 0010 100 0110 0000.... to decimal from single precision (32-bit)

Sign bit = 0

Exp = $130-127 = 3$

Mantissa = 1.100011×2^3

$1100.011 = 12.375$