Some useful formulas:

Conversion factor from Curie constant to get effective moment:

$$\chi = \frac{C}{T - T_C}$$

χ in units of cm^3/mol-F.U.

$$m_{eff} = \sqrt{\frac{C \times 8}{no.of\ -magnetic-atoms-per-\ formula-unit}}$$

In units of μ_B/mol-magnetic atom

Getting susceptibility in units of cm^3/mol-F.U.

H =Magnetic field in units of Oe

M = Magnetic moment in emu

a = mass of sample in gram

w = molecular weight

Then

$$\chi = (\frac{M}{H}) \times (\frac{w}{a})$$ [cm^3/mol-F.U.]

C and T_θ from fitting the curve χ^{-1} vs T

$$\chi = \frac{C}{T - T_\theta}$$

C= 1/slope

T_θ = -1*intercept/slope

Getting moment in μ_B/F.U.

m=moment in emu

a=mass of sample

w = molecular weight

N_A = Avogadro number = 6.02214×10^{23}

μ_B = Bohr magnetron=9.27401e-21

Then,

$$M = \left(\frac{m \times w}{a \times \mu_B \times N_A}\right)$$ in units of μ_B/F.U.

Formula for conversion of Heat capacity Units from J/gm-K to J/mol-atom K

A =Cp in J/gm-K

B=Cp in J/mol-K

w = molecular wt.

Then

$$B = A * w$$

Note: In heat capacity measurement to calculate beta and gamma and entropy use the unit of heat capacity as follows:

mJ/mol-formula unit-K

Polycrystalline average of magnetization(susceptibility):

Poly average=1/3(Chi-c)+(2/3)(Chi-ab)

Formula for calculating Debye temperature from Beta value:

If the heat capacity is expressed in the units J/mol-formula unit K, then the formula for Debye temperature is:

$\theta_D = \sqrt{[12\pi^4 rR/(5\beta)]}$= $\theta_D = \sqrt{[1944r/\beta)]}$, where r= number of atoms in the foumula unit and R=universal gas constant =8.31 J/mol

If the heat capacity is expressed in the units of J/mol-atom K, then the formula becomes:

$\theta_D = \sqrt{[12\pi^4 R/(5\beta)]}$ = $\theta_D = \sqrt{[1944/\beta)]}$