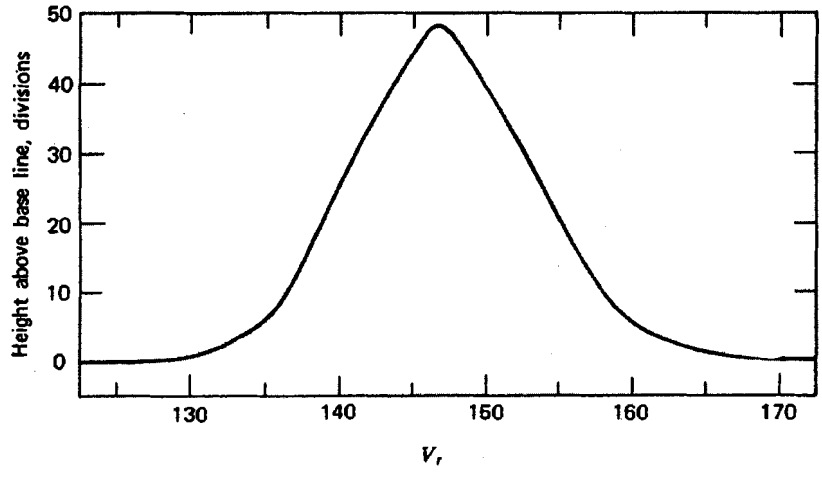
3.034 – Problem set #1 Due Wednesday (Sept. 22)

1) Using the GPC (gel permeation chromatography) curve and calibration data shown below, calculate the number ($\overline{M}_n$) and weight ($\overline{M}_w$) average molecular weight and polydispersity of this polymer sample. Note, the y-axis numbers in a GPC experiment are proportional to n_iM_i.



V_r (retention volume)	M_i (determined from a calibration curve)
130	98,000
135	55,000
140	31,500
145	18,000
150	10,000
155	5,700
160	3,250
165	1,800

2) a. Draw all of the possible stereoisomers (geometric and optical only) of the following polymers and indicate which of the isomers would exhibit true optical activity.
b. show/draw the strongest type of intermolecular secondary bonding interaction possible for each molecule