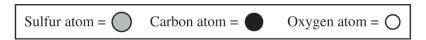
## 2018 AP® CHEMISTRY FREE-RESPONSE QUESTIONS



Compound	Molecular Structure	Boiling Point at 1 atm (K)
CS <sub>2</sub>	0	319
COS	0-0-0	223

- 4. The table above gives the molecular structures and boiling points for the compounds  $\,{\rm CS}_2$  and  $\,{\rm COS}_1$ .
  - (a) In terms of the types and relative strengths of all the intermolecular forces in each compound, explain why the boiling point of  $CS_2(l)$  is higher than that of COS(l).
  - (b) A 10.0 g sample of  $CS_2(l)$  is put in an evacuated 5.0 L rigid container. The container is sealed and heated to 325 K, at which temperature all of the  $CS_2(l)$  has vaporized. What is the pressure in the container once all of the  $CS_2(l)$  has vaporized?