

46. The result of problem 3 in Chapter 39 is adapted to these units ( $hc = 1240 \text{ eV} \cdot \text{nm} = 1240 \text{ keV} \cdot \text{pm}$ ). The energy difference  $E_L - E_M$  for the x-ray atomic energy levels of molybdenum is

$$\Delta E = E_L - E_M = \frac{hc}{\lambda_L} - \frac{hc}{\lambda_M} = \frac{1240 \text{ keV} \cdot \text{pm}}{63.0 \text{ pm}} - \frac{1240 \text{ keV} \cdot \text{pm}}{71.0 \text{ pm}} = 2.2 \text{ keV} .$$