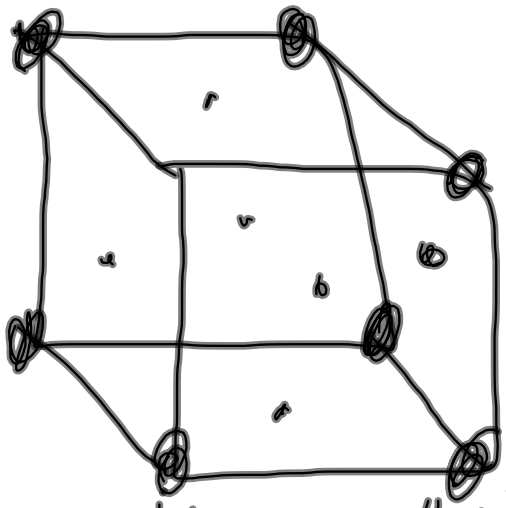
$$85.93\,g\left(\frac{1\,mol}{18.02\,g}\right)\left(\frac{6.01\,kJ}{1\,mol}\right)$$

$$= 28.7\,kJ$$



$$d = \frac{m}{V}$$

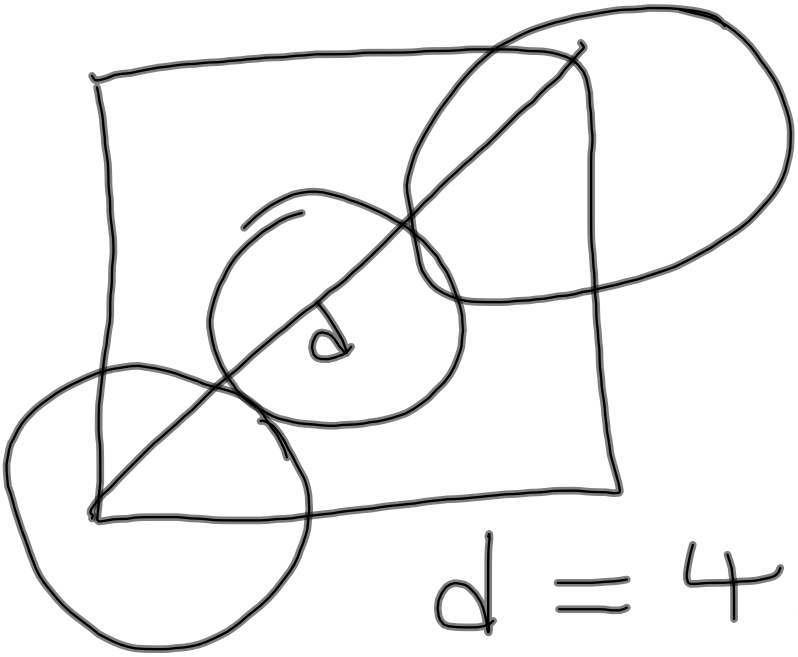
$\leftarrow 3.803\,\text{Å} \rightarrow$

$$V = (3.803 \times 10^{-8}\,\text{cm})^3 = 5.500 \times 10^{-23}\,\text{cm}^3$$

$$\frac{102.9\,\text{g}}{1\,\text{mol}}\left(\frac{1\,\text{mol}}{6.022 \times 10^{23}\,\text{atoms}}\right)\left(\frac{4\,\text{atoms}}{1\,\text{unit cell}}\right) =$$

$$6.835 \times 10^{-22}\,\frac{\text{g}}{\text{unit cell}}$$

$$d = \frac{m}{V} = \frac{6.835 \times 10^{-22}\,\text{g}}{5.500 \times 10^{-23}\,\text{cm}^3} = 12.43\,\frac{\text{g}}{\text{cm}^3}$$



$$d = 4r$$

$$d^2 = s^2 + s^2 = 2s^2$$

$$d^2 = 2s^2$$

$$d = s\cdot\sqrt{2}$$

$$4r = s\cdot\sqrt{2}$$

$$r = \frac{s\cdot\sqrt{2}}{4}$$

For a face-centered cube

$$r = \frac{(4.050\text{Å})\sqrt{2}}{4} = 1.432\text{Å}$$