

6. We note that there is one conduction electron per atom and that the molar mass of gold is 197 g/mol. Therefore, combining Eqs. 42-2, 42-3 and 42-4 leads to

$$n = \frac{(19.3 \text{ g/cm}^3)(10^6 \text{ cm}^3/\text{m}^3)}{(197 \text{ g/mol})/(6.02 \times 10^{23} \text{ mol}^{-1})} = 5.90 \times 10^{28} \text{ m}^{-3} .$$