

$$2.98 \text{ (a) } 3.52 \text{ g H}_2\text{S} \left(\frac{\text{mol H}_2\text{S}}{34.086 \text{ g H}_2\text{S}} \right) \left(\frac{6.022 \times 10^{23} \text{ molecules H}_2\text{S}}{\text{mol H}_2\text{S}} \right) \left(\frac{2 \text{ atoms H}}{\text{molecule H}_2\text{S}} \right)$$

$$= \boxed{1.24 \times 10^{23} \text{ atoms H}}$$

$$\text{(b) } 1 \text{ molecule H}_2\text{S} \left(\frac{\text{mol H}_2\text{S}}{6.022 \times 10^{23} \text{ molecules H}_2\text{S}} \right) \left(\frac{34.086 \text{ g}}{\text{mol}} \right)$$

$$= \boxed{5.660 \times 10^{-23} \text{ g H}_2\text{S}}$$

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- 2.132 (a) ^{133}Xe has 54 p^+ , $133 - 54 = 79n$, and $54e^-$
- (b) $^{131}\text{I}^-$ has 53 p^+ , $131 - 53 = 78n$, and $53 + 1 = 54e^-$
- (c) $^{201}\text{Tl}^+$ has 81 p^+ , $201 - 81 = 120n$, and $81 - 1 = 80e^-$