6.30: How many moles of aspirin, $C_9H_8O_4$, are in 500mg tablet?

$$500\,\text{mg aspirin} \times \frac{1\,\text{g aspirin}}{1000\,\text{mg aspirin}} = .5\,\text{g aspirin}$$

$C_9 = 12.01 \times 9 = 108.09$
$H_8 = 1.008 \times 8 = 8.064$
$O_4 = 15.9994 \times 4 = 63.9976$ } +
$180.1516 = 180\,\text{g}$

$$.5\,\text{g aspirin} \times \frac{1\,\text{mol aspirin}}{180\,\text{g aspirin}} = 2.78 \times 10^{-3}\ \text{mol of aspirin}$$

6.32: Calculate molar masses of following:

a) $Al_2(SO_4)_3$

$Al_2 = 26.98153 \times 2 = 53.96306$
$S = 32.065 \times 3 = 96.195$
$O = 15.9994 \times 12 = 191.9928$ } + → 342.15086

342 g/mol

b) $NaHCO_3$

$Na = 22.98976$
$H = 1.001$
$C = 12.011$
$O_3 = 15.9994 \times 3 = 47.9982$ } + → 83.99996

84.0 g/mol

c) $(C_2H_5)_2O$

$C = 12.011 \times 4 = 48.044$
$H = 1.001 \times 10 = 10.01$
$O = 15.9994$ } + → 74.0534

74.0 g/mol

d) $C_{16}H_{18}N_2O_5S$

$C_{16} = 12.011 \times 16 = 192.176$
$H_{18} = 1.001 \times 18 = 18.018$
$N_2 = 14.00674 \times 2 = 28.01348$
$O_5 = 15.9994 \times 5 = 79.997$
$S = 32.065$ } + → 350.26948

350. g/mol