

Moles to grams and Grams to moles

Practice Problems

a) Ca(OH)_2

$$1 \times \text{Ca} = 1 \times 40.08 \text{ g/mol} = 40.08 \text{ g/mol}$$

$$2 \times \text{O} = 2 \times 16.00 \text{ g/mol} = 32.00 \text{ g/mol}$$

$$2 \times \text{H} = 2 \times 1.01 \text{ g/mol} = \frac{2.02 \text{ g/mol}}{74.10 \text{ g/mol}}$$

$$(4.00 \text{ moles})(74.10 \text{ g/mol}) = 296.4 \text{ g Ca(OH)}_2$$

b) NaOH

$$1 \times \text{Na} = 1 \times 22.99 \text{ g/mol} = 22.99 \text{ g/mol}$$

$$1 \times \text{O} = 1 \times 16.00 \text{ g/mol} = 16.00 \text{ g/mol}$$

$$1 \times \text{H} = 1 \times 1.01 \text{ g/mol} = \frac{1.01 \text{ g/mol}}{40.00 \text{ g/mol}}$$

$$\frac{12.0 \text{ g}}{40.00 \text{ g/mol}} = 0.300 \text{ mol NaOH}$$

c) K_2SO_4

$$2 \times \text{K} = 2 \times 39.10 \text{ g/mol} = 78.20 \text{ g/mol}$$

$$1 \times \text{S} = 1 \times 32.06 \text{ g/mol} = 32.06 \text{ g/mol}$$

$$4 \times \text{O} = 4 \times 16.00 \text{ g/mol} = \frac{64.00 \text{ g/mol}}{174.26 \text{ g/mol}}$$

$$\frac{100.0 \text{ g}}{174.26 \text{ g/mol}} = 0.5739 \text{ mol K}_2\text{SO}_4$$

d) CH_3OH

$$1 \times \text{C} = 1 \times 12.01 \text{ g/mol} = 12.01 \text{ g/mol}$$

$$4 \times \text{H} = 4 \times 1.01 \text{ g/mol} = 4.04 \text{ g/mol}$$

$$1 \times \text{O} = 1 \times 16.00 \text{ g/mol} = \frac{16.00 \text{ g/mol}}{32.05 \text{ g/mol}}$$

$$(0.02 \text{ mol})(32.05 \text{ g/mol})$$

$$= 0.64 \text{ g CH}_3\text{OH}$$