Stoichiometry

moles →

$$\underline{CH_4} + 2O_2 \rightarrow \underline{CO_2} + 2H_2O$$

(1 above CH_4; x above CO_2; x above $2H_2O$)

→ grams

$$\frac{1}{2} = \frac{x}{2} \quad 2 : 2(x) \quad x = 1 \text{ mol } H_2O$$

$$\frac{1}{2} \not= \frac{x}{1} \quad 1 = 2x \quad x = .5 \text{ mol } CO_2$$

22.

$$3CsC_2H_3O_2 + AlPO_4 \rightarrow Al(C_2H_3O_2)_3 + Cs_3PO_4$$

(x above $3CsC_2H_3O_2$; 1.25×10^{-6} above $Al(C_2H_3O_2)_3$)

$$\frac{x}{3} = \frac{1.25 \times 10^{-6}}{1}$$

$$(x) = 3(1.25 \times 10^{-6})$$

$$= 3.75 \times 10^{-6} \text{ mol}$$

Final Exam F

Fri 5/8 1:30-4

2.00 x

$C_3H_8 + 5O_2 \rightarrow 3CO_2 + 4H_2O$

$\frac{2}{1} = \frac{x}{5}$

x = 10 moles of O_2

10.0 moles

$$\overset{4.00}{C_3H_8} + 5O_2 \rightarrow \overset{x}{3CO_2} + 4H_2O$$

$$\frac{4}{5} = \frac{x}{3}$$

$$\frac{12}{5} = \frac{x(5)}{5}$$

$x = 2.4$ mol of CO_2

2.40 mol

$$\underset{x}{C_3H_8} + \underset{3.00}{5O_2} \rightarrow 3CO_2 + 4H_2O$$

$$\frac{x}{1} = \frac{3}{5}$$

$$\frac{3}{5} = \frac{x(5)}{5}$$

$x = .600$ mol of C_3H_8

$$\overset{.50}{C_3H_8} + 5O_2 \rightarrow 3CO_2 + \overset{x}{4H_2O}$$

$$\frac{.5}{1} = \frac{x}{4}$$

$$.5(4) = x$$

$$x = 2.0 \text{ moles } H_2O$$

? g O_2 4.00 mol C_2H_6

4.00 x

$2C_2H_6 + 7O_2 \rightarrow 4CO_2 + 6H_2O$

mole → mole

$\frac{4}{2} = \frac{x}{7}$

$(4)(7) = x(2)$

$28 = x(2)$

$x = 14.0$ mol O_2

mol → g

$$\frac{14.0 \text{ mol} \times 32 \text{ g}}{1 \text{ mol}} = 448 \text{ g of } O_2$$

O 16 x 2 = 32 g = 1 mol

?g C_2H_6 115g O_2

× 3.59375

$2C_6H_6 + 7O_2 \rightarrow 4CO_2 + 6H_2O$

g → mol

O 16 x 2 = 32g = 1mol

$\frac{115g \times 1mol}{32g} = 3.59375mol\ O_2$

mol → mol

$\frac{x}{2} = \frac{3.59375}{7}$

$7(x) = 2(3.59375)$

$7(x) = 7.1875$

$x = 1.026785$ mol C_2H_6

mol → g

C 12 x 2 = 24

H 1 x 6 = 6

30g = 1mol

$\frac{1.026785mol \times 30g}{1mol} = 30.8g$ of C_2H_6

? g C_2H_6 88 g CO_2

x 2

$2C_6H_6 + 7O_2 \rightarrow 4CO_2 + 6H_2O$

g → mol

C $12 \times 1 = 12$

O $16 \times 2 = 32$

$44\,g = 1\,mol$

$$\frac{88\,g \times 1\,mol}{44\,g} = 2\,mol\ CO_2$$

mol → mol

$$\frac{x}{2} = \frac{2}{4}$$

$4x = 4$

$x = 1\,mol\ C_2H_6$

mol → g

C_2H_6 $30\,g = 1\,mol$

$$\frac{1\,mol \times 30\,g}{1\,mol} = 30\,g\ C_2H_6$$

? g H_2O 82.5 g O_2

$$2C_6H_6 + 7O_2 \rightarrow 4CO_2 + 6H_2O$$

ex.

? mol	3.67 mol	mol → mol
? g	3.67 mol	mol → mol mol → g
? g	172 g	g → mol mol → mol mol → g