

Fall Exam 1

PEMDAS

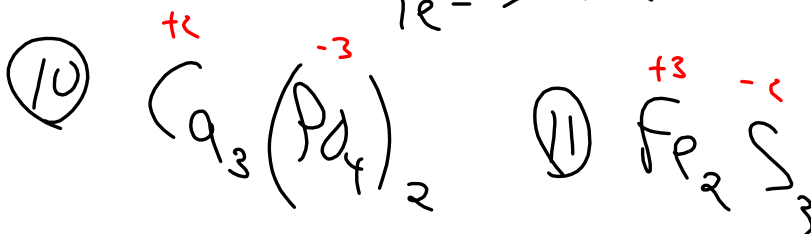
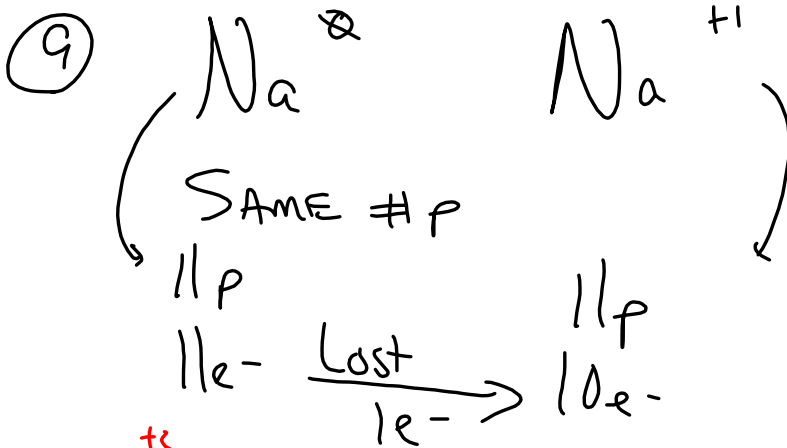
②  $425.19 (342.69 - 327.26)$

$425.19 (15.43)$

$\underline{6560.6817}$

$\boxed{6561}$

Oct 22-8:08 AM



Oct 22-8:21 AM

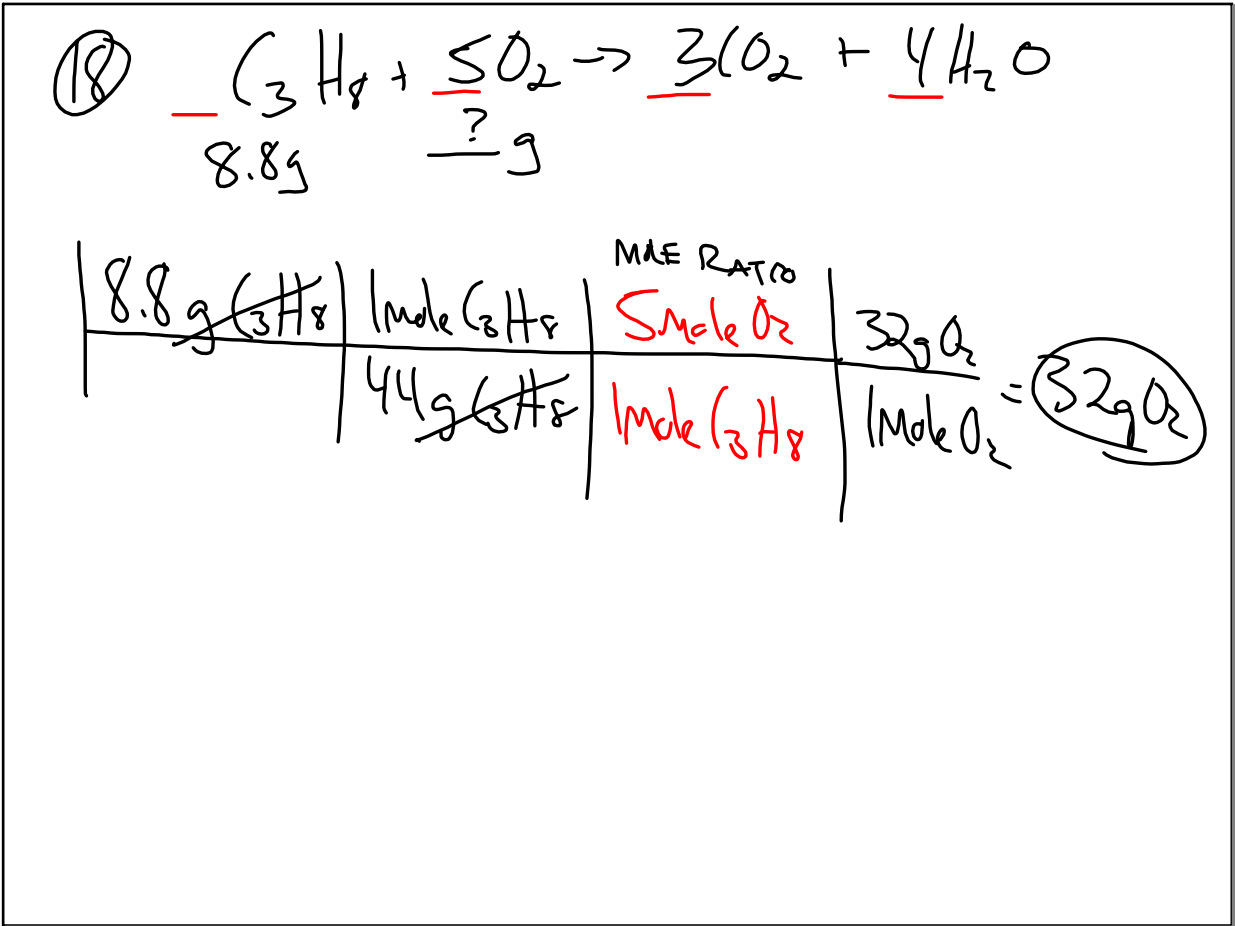
$$\textcircled{13} \quad \begin{array}{|c|c|c|} \hline 0.78 \text{ g Alcohol} & 29.57 \text{ mL} & 20\% \\ \hline \text{mL} & 10\% & \\ \hline \end{array} = 46.13 \text{ g Alcohol}$$

$$\textcircled{14} \quad 0.692(63) + 0.308(65) = 63.616 \text{ g}$$

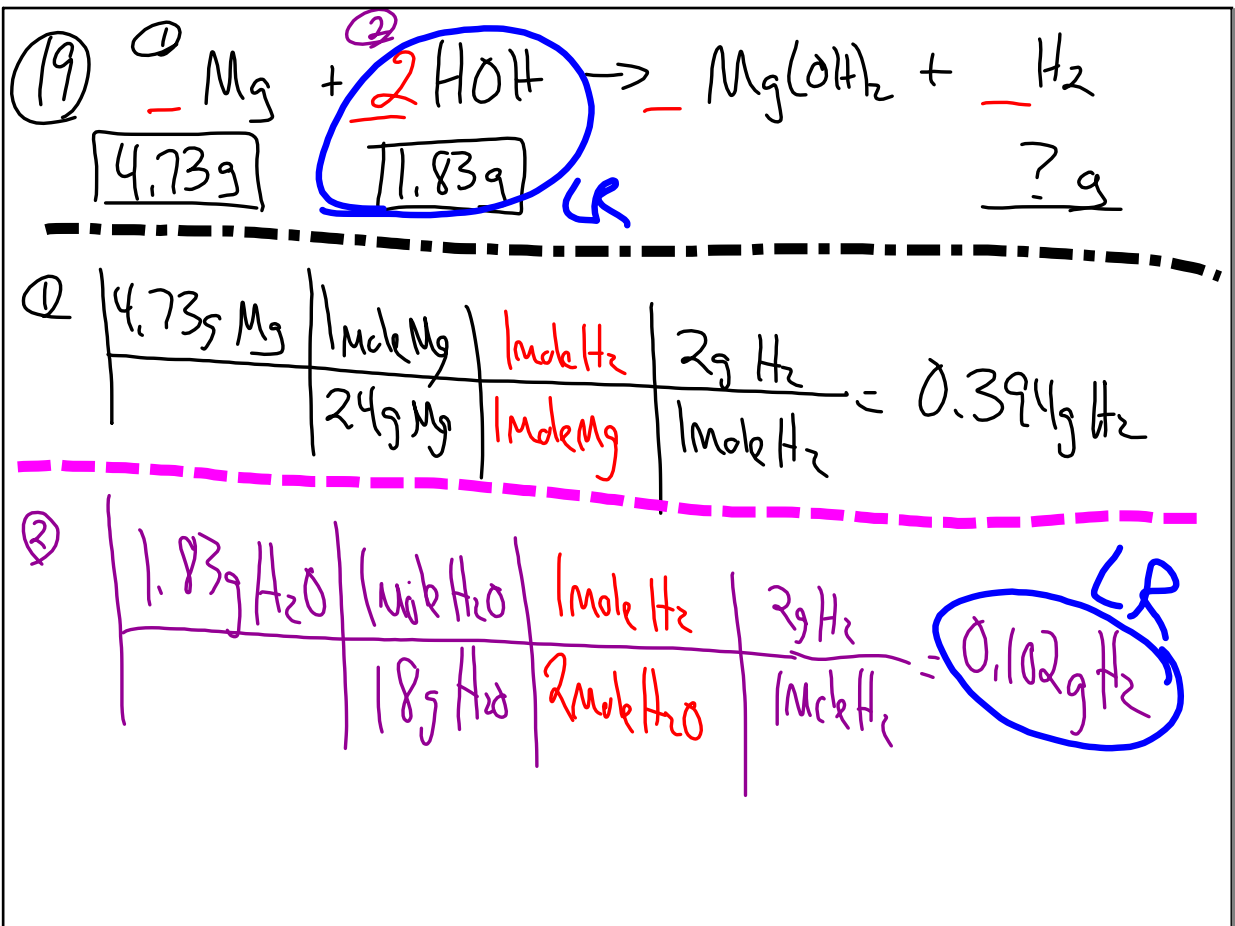
Oct 22-8:24 AM

$$\textcircled{16} \quad \begin{array}{|c|c|c|} \hline 6.09 \text{ g Fe} & 1 \text{ mole Fe} & 6 \times 10^{23} \text{ atoms Fe} \\ \hline 56 \text{ g Fe} & 1 \text{ mole Fe} & \\ \hline \end{array} : 6.525 \times 10^{22} \text{ atoms Fe}$$

Oct 22-8:27 AM



Oct 22-8:28 AM



Oct 22-8:31 AM

$$\text{Moles A} = \text{Moles B}$$

$$n \text{ M L} = n \text{ M L}$$

$$(1) \text{M} (2.5 \text{ mL}) = (1) (0.101) (41.2 \text{ mL})$$

$$0.166 \text{ M}$$

NaOH

Oct 22-8:35 AM

$$\text{M} \frac{\text{mole}}{\text{L}}$$

<del>32g HCl</del>	1 mole HCl	= 0.36 M HCl
2.5 L	36g HCl	

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$$\text{AgNO}_3(aq) + \text{NaI}(aq) \rightarrow \text{AgI}(s) + \text{NaNO}_3(aq)$$

$$\text{Ag}^+ + \cancel{\text{NO}_3^-} + \cancel{\text{Na}^+} + \text{I}^- \rightarrow \text{AgI}(s) + \cancel{\text{Na}^+} + \cancel{\text{NO}_3^-}$$

$$\text{Ag}^+(aq) + \text{I}^-(aq) \rightarrow \text{AgI}(s)$$

Oct 22-8:51 AM

(c)  $\frac{63.15gC}{12gC} = 5.26moleC / 1.97$   $C_8H_8O_2$   
 $266 * 3 = 8$  notes

$\frac{5.3gH}{1gH} = 5.3moleH / 1.97 = 2.67$   $*3 = 8$

$\frac{31.55gO}{16gO} = 1.97moleO / 1.97 = 1$   $*3 = 3$

Oct 22-8:54 AM

$KE = \frac{1}{2} M U^2$

$J = Kg \cdot m^2 / sec^2$

$Kg$  (circled)  
 $m/sec$  (circled)

Oct 22-9:01 AM

Methane  $\text{CH}_4$   $\Delta H = -890 \text{ KJ}$   
4.5g  $\rightarrow$  ? KJ Heat of combustion

$\text{CH}_4 + 2\text{O}_2 \rightarrow \text{CO}_2 + 2\text{H}_2\text{O}$   $\Delta H = -890 \text{ KJ}$   
 2K - 250 KJ

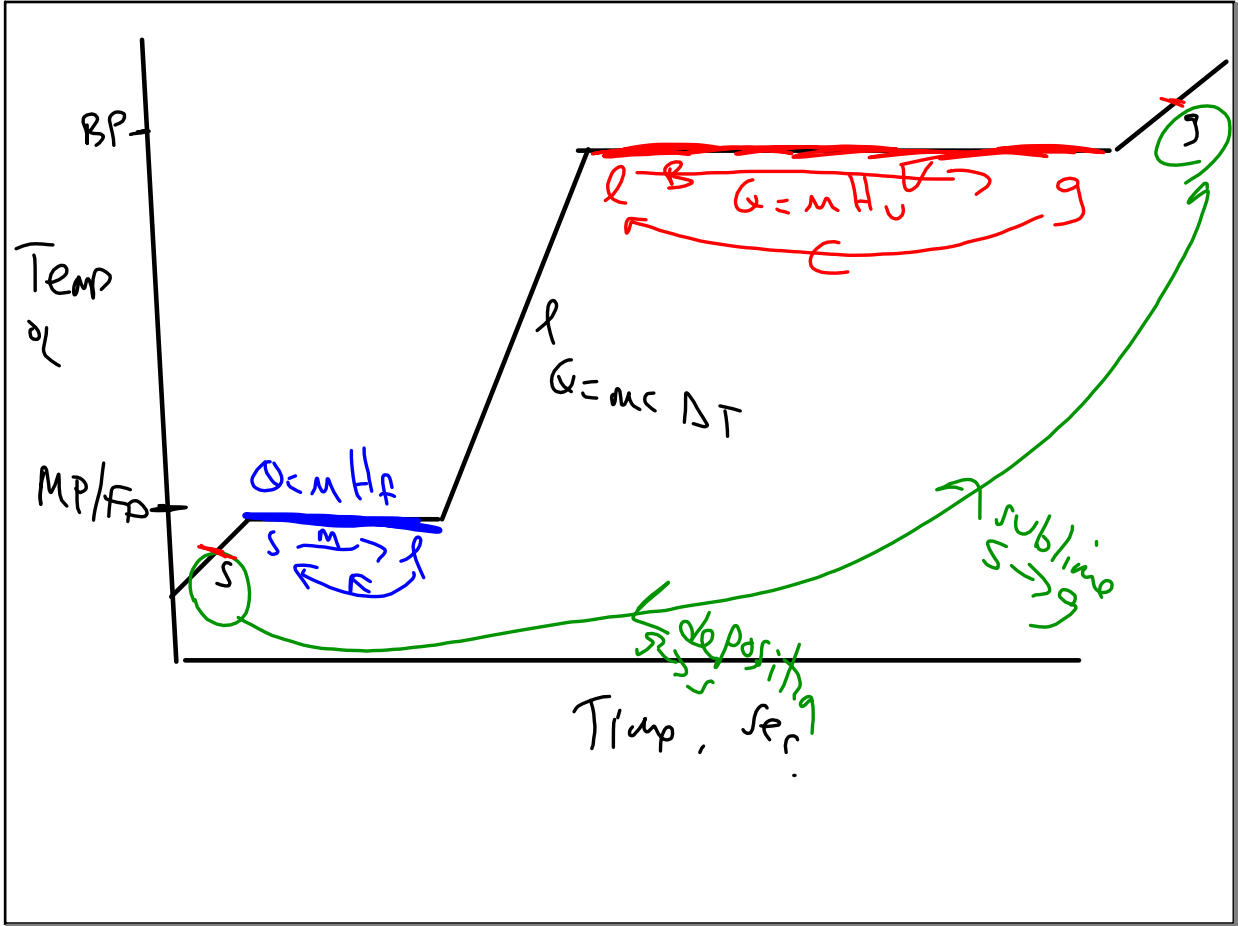
<del>4.5g CH<sub>4</sub></del>	<del>1 mole CH<sub>4</sub></del>	<del>-890 KJ</del>	= <span style="border: 1px solid black; padding: 5px;">-250.3 KJ</span>
	16g CH <sub>4</sub>	1 mole CH <sub>4</sub>	

Oct 22-9:04 AM

2 H<sub>2</sub>O<sub>2</sub>  $\rightarrow$  2 H<sub>2</sub>O + O<sub>2</sub> + 196 KJ  
5g ? KJ

<del>5g H<sub>2</sub>O<sub>2</sub></del>	<del>1 mole H<sub>2</sub>O<sub>2</sub></del>	<del>-196 KJ</del>	= <span style="border: 1px solid black; border-radius: 50%; padding: 5px;">-14.4 KJ</span>
	34g H <sub>2</sub> O <sub>2</sub>	2 mole H <sub>2</sub> O <sub>2</sub>	

Oct 22-9:13 AM



Oct 22-9:19 AM

$Q = \text{Joules}$

$Q = m c \Delta T$

$J = \frac{g}{1} \times \frac{J}{g \cdot ^\circ C} \times \frac{^\circ C}{1}$

Units for  $c$ ?  
Specific HEAT.

$\frac{Q}{m \Delta T} = \frac{m c \Delta T}{m \Delta T}$

$\frac{Q}{m \Delta T} = c$

$\frac{J}{g \cdot ^\circ C} = c$  Heat capacity

Oct 22-9:23 AM

Heat capacity (c) =  $\frac{J}{g \cdot ^\circ C}$

Molar heat capacity =  $\frac{J}{Mole \cdot ^\circ C}$

Oct 22-9:25 AM

10g H<sub>2</sub>O(l) -5°C → Steam 110°C

    ?     J

(-5 → 110)

$Q = m c \Delta T$   
 $= 10(4.18)(115)$   
 $= 4807 J$

Boil  
 $Q = m H_v$   
 $= (10)(2260 J/g)$   
 $22600$

MELT  
 $Q = m H_f$   
 $= (10)(334 J/g)$   
 $3340$

30747 J = 30.747 kJ

Oct 22-9:27 AM



$$5/38_a + 52$$

Oct 22-9:32 AM