

P5.2
 $\text{HCl} + \text{KOH} \rightarrow \text{KCl} + \text{H}_2\text{O} + 56 \text{ kJ}$ exo $\Delta H = -56 \text{ kJ}$

50ml 0.22M 1ml 0.41M 56 J/mol

① Find ml KOH (Neutralization)
 Mdest = mdest B
 nM1 = nM2
 (1)(0.22)(50) = 1(0.41)ml
27.5ml KOH

② Find total volume
 50 + 27.5 = 77.5ml

③ Density
 $\frac{77.5 \text{ ml} \times 1.01 \text{ g/ml}}{1 \text{ ml}} = \text{78.225 g}$

④ $Q = mc\Delta T$
 $78.225 \text{ g} \times 4.18 \text{ J/g}^\circ\text{C} \times \Delta T = 56 \text{ kJ}$
1.88

⑤ $\Delta T = \frac{Q}{m \times c} = \frac{56000 \text{ J}}{78.225 \text{ g} \times 4.18 \text{ J/g}^\circ\text{C}} = 1.88^\circ\text{C}$

⑥ $\Delta T = 1.88^\circ\text{C}$

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Moles = M x V
 = (0.22)(50 x 10⁻³ l)
= 0.011 mole

$\frac{56 \text{ kJ}}{1 \text{ mole}} \times 0.011 \text{ mole} = \text{0.616 kJ}$

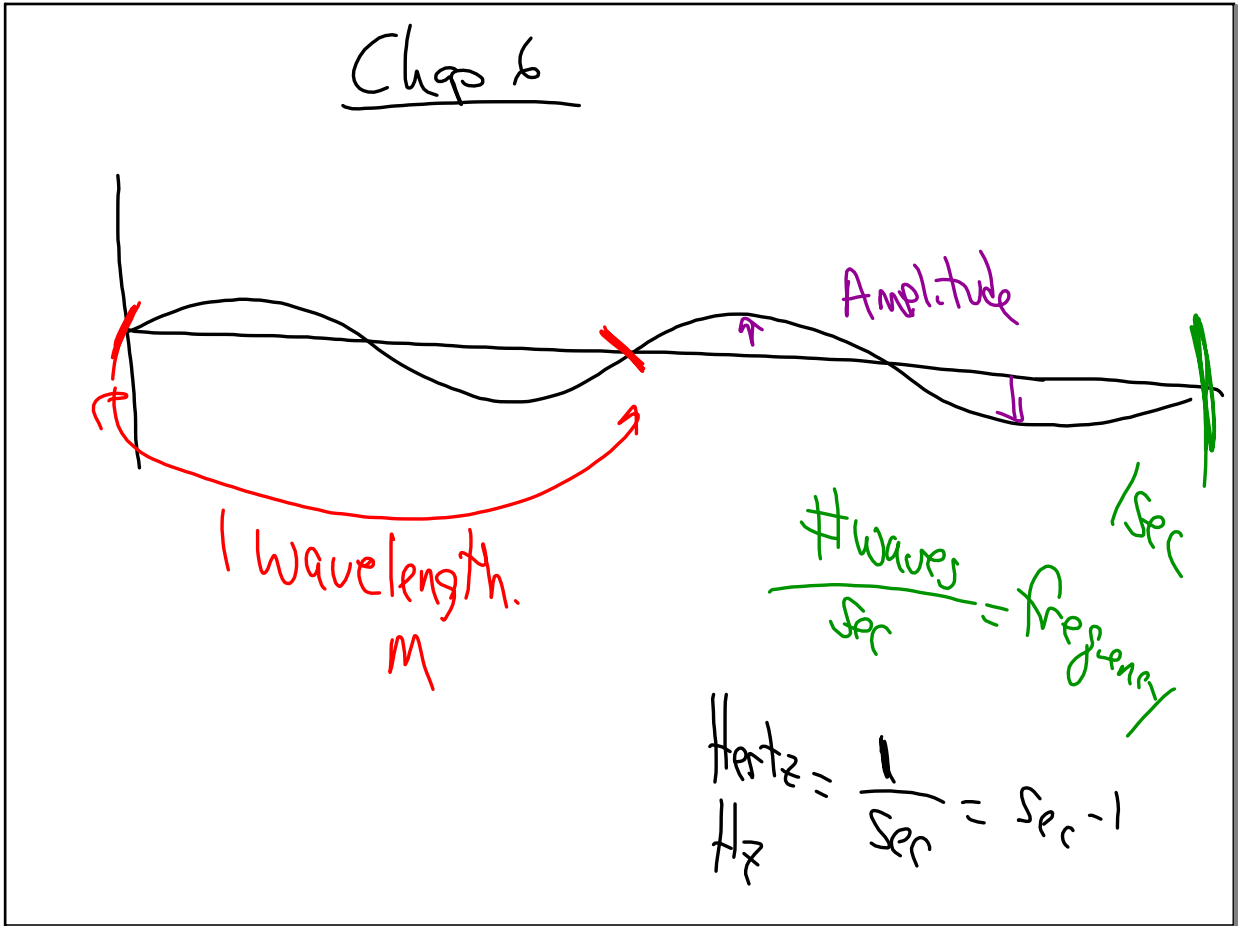
Oct 23-7:23 AM

5.2
 ② $\frac{17 \text{ kJ}}{9}$, 2l, 400g sugar

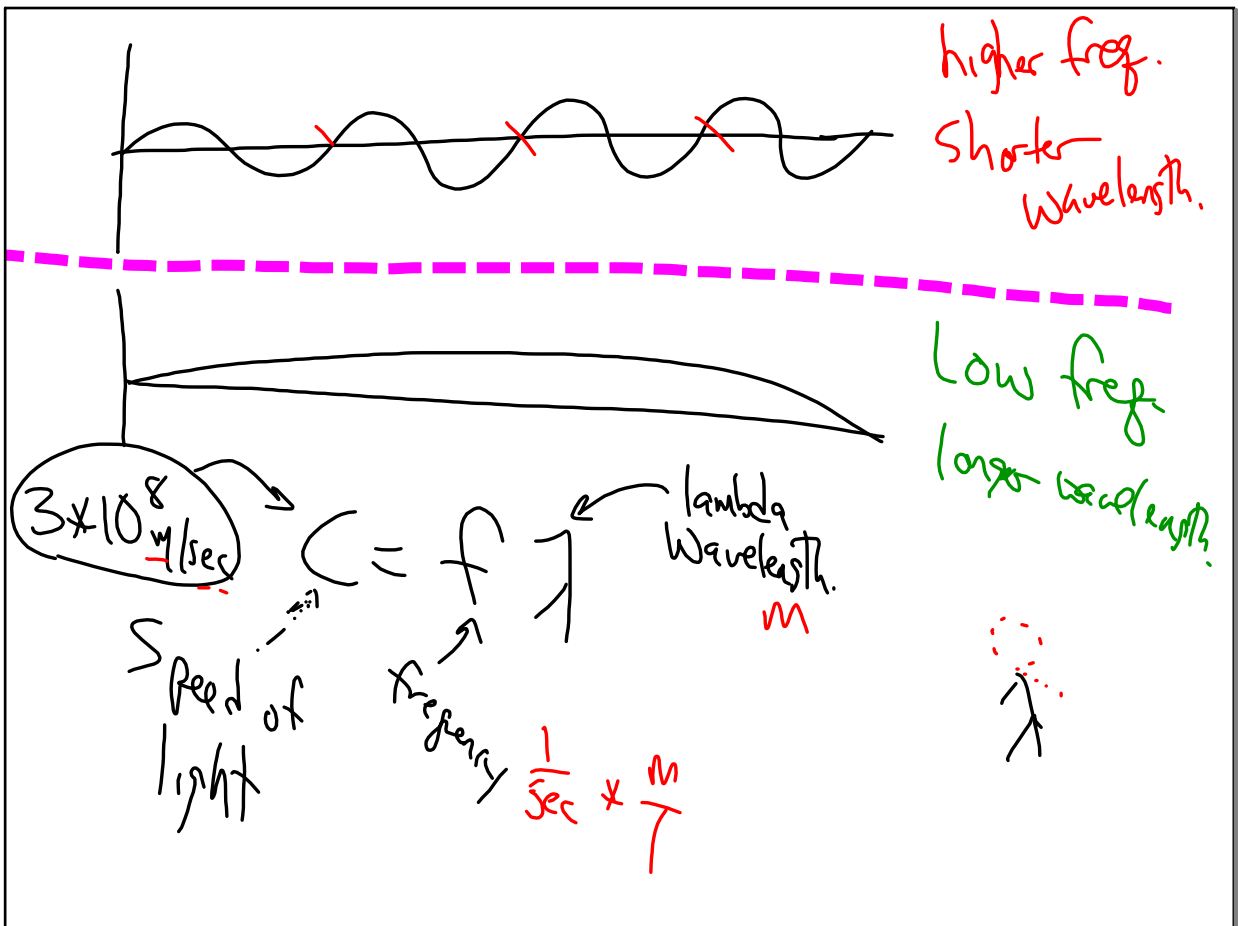
Find $\frac{\text{kJ}}{50 \text{ ml}}$

17 kJ	400g	0.500 l	=
9	2l		

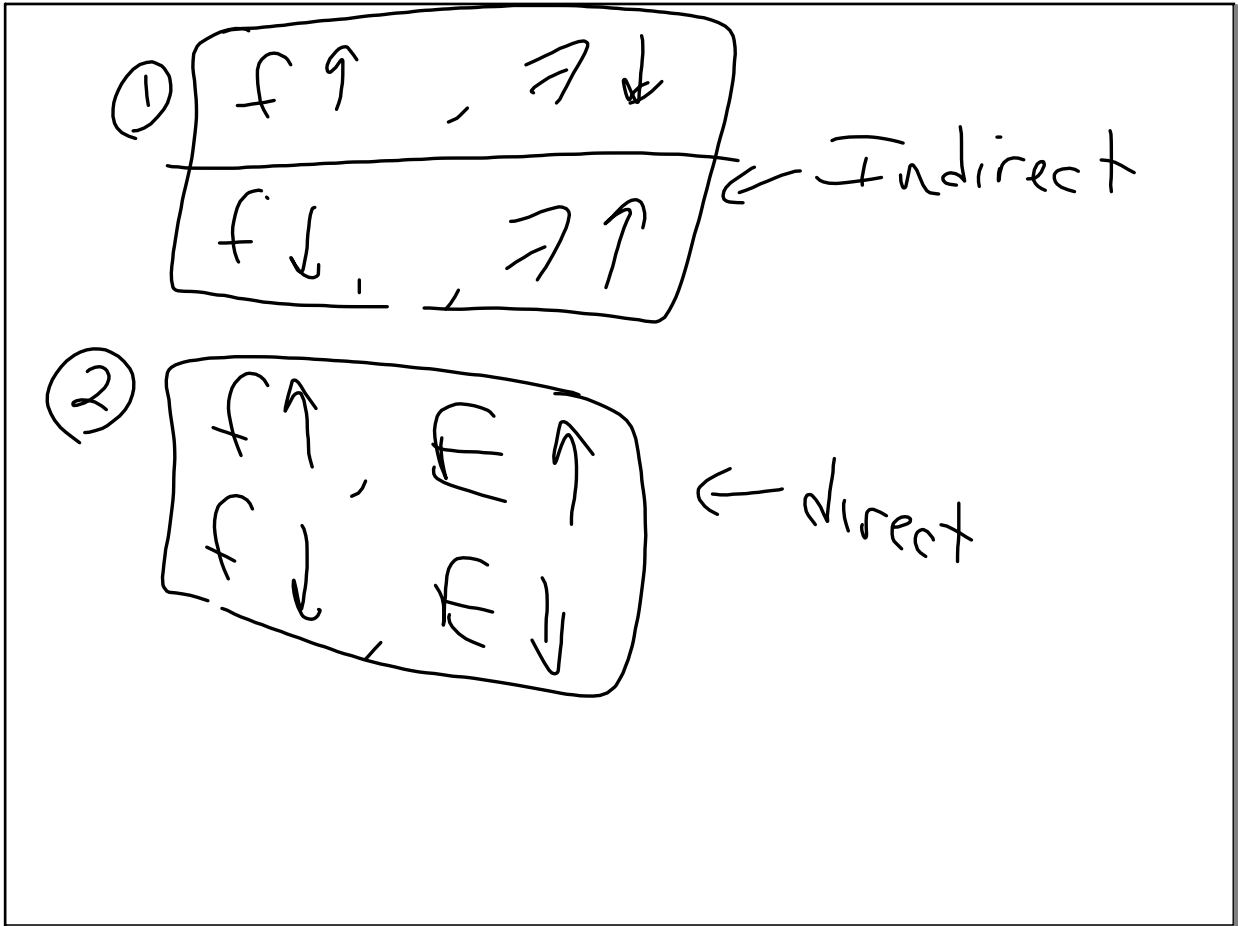
Oct 23-7:57 AM



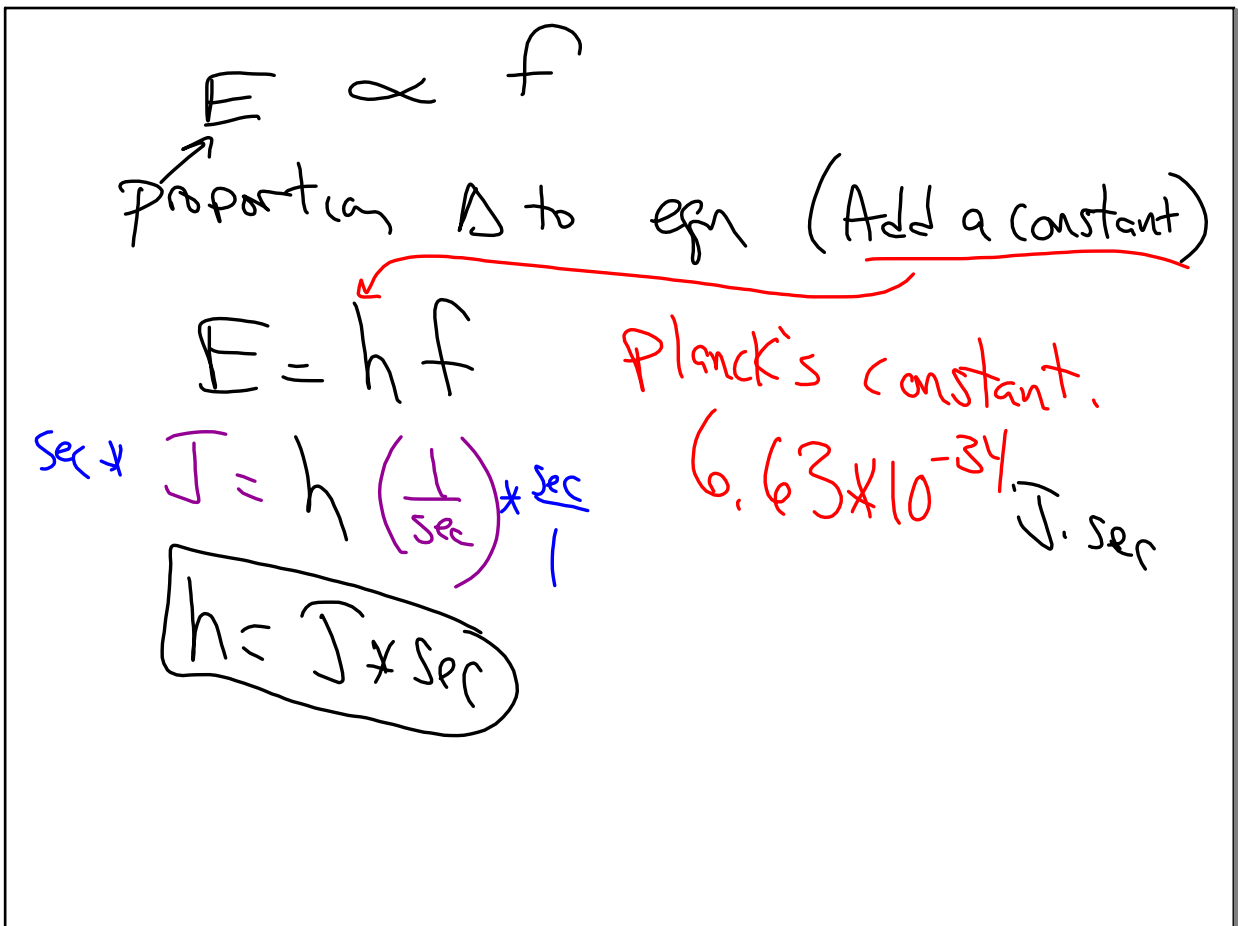
Oct 23-8:07 AM



Oct 23-8:12 AM



Oct 23-8:20 AM



Oct 23-8:21 AM

Basic 'quanta' of energy.
amount.

photon of light.

Stairs energy for $2\frac{1}{2}$ steps

Oct 23-8:25 AM

Waves → energy ←
→ light ← (dots)
→ sand. -

880 <u>AM</u>	WCBS.	} 95.1 WRFK / 93.9 QBR
660 AM	WFAU	
Amplitude		Δ frequency.

(FM)

Oct 23-8:28 AM

ROYGBIV

↙ largest λ
750 nm

↘ Shortest λ (m)
400 nm

$1 \text{ nano} = 10^{-9} \text{ m}$

$400 \times 10^{-9} \text{ m}$

Oct 23-8:32 AM

Light mass?

$E = hf$

$E = mc^2$

$E = E$

$hf = mc^2$

$\frac{hc}{\lambda} = \frac{mc^2}{1}$

$\frac{h}{\lambda} = \frac{m}{1}$

$\frac{h}{mc} = \frac{\lambda}{1}$

$m = \text{kg}$
 $v = \text{m/sec}$
 $\lambda = \text{m}$
 $f = \frac{1}{\text{sec}}$

$v = \text{velocity (speed)}$
 $\frac{h}{mv}$
 $\frac{h}{p}$
 momentum

$\frac{h}{mv} = \frac{\lambda}{1}$

De Broglie wavelength.

Oct 23-8:36 AM

6 ton , $\frac{40 \text{ miles}}{\text{hr}}$, find λ
Schrodinger

$$\lambda = \frac{h}{mv} = \frac{6.63 \times 10^{-34} \text{ J}\cdot\text{sec}}{mv}$$

6/15+17

Oct 23-8:44 AM