Physics: Segment 2 Equations Sheet

Section 1: Module 4			
Name (Lesson)	**#**	**Equation**	**Variables/Notes**
	1	$F_e = \frac{kq1q2}{d^2}$	
	2	$F_g = \frac{Gm_1m_2}{d^2}$	
	3	$E = \frac{F}{q}$	
	4	$V = IR$	
	5	$P = IV$	
Section 2: Module 5			
Name (Lesson)	**#**	**Equation**	**Variables/Notes**
	6	$T = 2\pi\sqrt{\frac{L}{g}}$	
	7	$v = \lambda f$	
	8	$f = \frac{1}{T}$ and $T = \frac{1}{f}$	
	9	$f_{beat} = \lvert f_2 - f_1 \rvert$	
	10	$\frac{1}{f}=\frac{1}{di}+\frac{1}{do}$	
	11	$n = \frac{c}{v}$	
	12	$n_1 Sin\theta_1 = n_2 Sin\theta_2$	
	13	$Sin\theta_c = \frac{n2}{n1}$	
	14	$\frac{x}{L}=\frac{\lambda}{d}$	

Section 3: Module 6			
Name (Lesson)	**#**	**Equation**	**Variables/Notes**
	15	$F = 1.8C + 32$	
	16	$K = C + 273$	
	17	$\Delta L = \alpha L_o \Delta T$	
	18	$Q = mc\Delta T$	
	19	$Q = mH_f$	
	20	$Q = mH_v$	
	21	$KE = \frac{1}{2} mv^2$	
	22	$GPE = mgh$	
	23	$\sum E_i = \sum E_f$	
	24	$E_{total} = KE + PE + Q$	
	25	$F = k\Delta x$	
	26	$EPE = k x^2 / 2$	
	27	$E = mc^2$	
	28	$\lambda = \frac{h}{p} = \frac{h}{mv}$	p= mv
	29	$c = f\lambda$	
	30	$E = hf$	
	31	$W_o = hf_o$	

	32	$KE = hf - hf_o$	
	33	$KE_{max} = V_o\, q$	
	34	$A - Z = N$	
	35	${}^{A}_{Z}X \rightarrow {}^{A-4}_{Z-2}Y + {}^{4}_{+2}He$	
	36	${}^{A}_{Z}X \rightarrow {}^{A}_{Z+1}Y + {}^{0}_{-1}e$	
	37	${}^{A}_{Z}X + {}^{0}_{-1}e \rightarrow {}^{A}_{Z-1}Y$	
	38	${}^{A}_{Z}X^{*} \rightarrow {}^{A}_{Z}X + \gamma$	
	39	$m_f = \frac{m_i}{2^n}$	
	40	$y = 1 / \sqrt{1 - \frac{v^2}{c^2}}$	
	41	$\Delta t = \Delta t_0 / \sqrt{1 - \frac{v^2}{c^2}}$	
	42	$L = L_0 \sqrt{1 - \frac{v^2}{c^2}}$	

Section 4: Greek Letters:

Greek Letter		Name	Equivalent	Sound When Spoken
Α	α	Alpha	A	al-fah
Β	β	Beta	B	bay-tah
Γ	γ	Gamma	G	gam-ah
Δ	δ	Delta	D	del-tah
Ε	ε	Epsilon	E	ep-si-lon
Ζ	ζ	Zeta	Z	zay-tah
Η	η	Eta	E	ay-tay
Θ	θ	Theta	Th	thay-tah
Ι	ι	Iota	I	eye-o-tah
Κ	κ	Kappa	K	cap-ah
Λ	λ	Lambda	L	lamb-dah
Μ	μ	Mu	M	mew
Ν	ν	Nu	N	new
Ξ	ξ	Xi	X	zzEye
Ο	ο	Omicron	O	om-ah-cron
Π	π	Pi	P	pie
Ρ	ρ	Rho	R	row
Σ	σ	Sigma	S	sig-ma
Τ	τ	Tau	T	tawh
Υ	υ	Upsilon	U	oop-si-lon
Φ	φ	Phi	Ph	figh or fie
Χ	χ	Chi	Ch	kigh
Ψ	ψ	Psi	Ps	sigh
Ω	ω	Omega	O	o-may-gah

Section 5: Prefixes and Constants:

Prefix	Symbol	Factor	Constants: Name	Symbol	Value
Giga	G	E9	Acceleration due to gravity	g	9.8 m/s^2
Mega	M	E6	Gravitational Constant	G	6.67 E -11 $\frac{Nm^2}{kg^2}$
Kilo	K	E3	Specific Heat of Water	C	4186$\frac{J}{kg\ C}$
Centi	c	E-2	Speed of light (vacuum)	c	3.00 E 8 m/s
Milli	m	E-3	Speed of sound (air)	vs	330 m/s
Micro	μ	E-6	Plank's Constant	h	6.63 E -34 Js
Nano	n	E-9	Coulomb's Constant	k	8.99 E 9 $\frac{Nm^2}{C^2}$
Pico	P	E-12	Pi	π	3.14
Femto	F	E-15	Mass of electron or positron	m	9.11 E -31 kg
			1 u = 931.5 MeV		
			Mass of Proton: 1.007825 u Mass of Neutron: 1.008665 u		
			1 calorie = 4.186 J 1 hp = 746 Watts 1 hp = 550 ft lb / s		

Section 6: Conversion Factors:

U.S. Customary Units of Measure

Length	Weight	Liquid Capacity
1 foot = 12 inches	1 pound = 16 ounces	1 cup = 8 fluid ounces
1 yard = 3 feet	1 ton = 2,000 pounds	1 pint = 2 cups
1 mile = 5,280 feet		1 quart = 2 pints
1 mile = 1.760 yards		1 gallon = 4 quarts

Metric Units of Measure

Length	Weight/Mass	Liquid Capacity
1 inch = 2.54 centimeters	1 pound = 0.454 kilograms	1 gallon = 3.785 liters
1 meter = 39.37 inches	1 kilogram = 2.2 pounds	1 liter = 0.264 gallon
1 mile = 1.609 kilometers	1 ounce = 28.35 grams	1 liter = 1,000 cubic centimeters
1 kilometer = 0.62 miles		1 milliliter = 1 cubic centimeter

Module 4

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: Module 5

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