

X757/75/11

Physics Relationships Sheet

WEDNESDAY, 17 MAY 1:00 PM – 3:00 PM





 $E_p = mgh$

 $E_k = \frac{1}{2}mv^2$

Q = It

V = IR

 $R_T = R_1 + R_2 + \dots$

 $\frac{1}{R_T} = \frac{1}{R_1} + \frac{1}{R_2} + \dots$

 $V_2 = \left(\frac{R_2}{R_1 + R_2}\right) V_S$

 $\frac{V_1}{V_2} = \frac{R_1}{R_2}$

 $P = \frac{E}{t}$

P = IV

 $P = I^2 R$

 $P = \frac{V^2}{R}$

 $E_h = cm\Delta T$

 $p = \frac{F}{A}$

 $\frac{pV}{T}$ = constant

 $p_1V_1 = p_2V_2$

 $\frac{p_1}{T_1} = \frac{p_2}{T_2}$

 $\frac{V_{1}}{T_{1}} = \frac{V_{2}}{T_{2}}$

d = vt

 $v = f\lambda$

 $T = \frac{1}{f}$

 $A = \frac{N}{t}$

 $D = \frac{E}{m}$

 $H = Dw_R$

 $\dot{H} = \frac{H}{t}$

s = vt

 $d = \overline{v}t$

 $s = \overline{v}t$

 $a = \frac{v - u}{t}$

W = mg

F = ma

 $E_w = Fd$

 $E_h = ml$

Additional Relationships

Circle

circumference = $2\pi r$

$$area = \pi r^2$$

Sphere

area =
$$4\pi r^2$$

volume =
$$\frac{4}{3}\pi r^3$$

Trigonometry

$$\sin \theta = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\cos \theta = \frac{\text{adjacent}}{\text{hypotenuse}}$$

$$\tan\theta = \frac{\mathsf{opposite}}{\mathsf{adjacent}}$$

$$\sin^2\theta + \cos^2\theta = 1$$

Electron Arrangements of Elements

		87 Fr 2,8,18,32, 18,8,1 Francium	55 Cs 2,8,18,18, 8,1 Caesium	37 Rb 2,8,18,8,1 Rubidium	19 X 2,8,8,1 Potassium	11 Na 2,8,1 Sodium	2,1 Lithium	<u>.</u>	1 1 Hydrogen	Group 1 (1)
	Lar	88 Ra 2,8,18,32, 18,8,2 Radium	56 Ba 2,8,18,18, 8,2 Barium	38 Sr 2,8,18,8,2 Strontium	20 Ca 2,8,8,2 Calcium	12 Mg 2,8,2 Magnesium	2,2 Beryllium	Be 4	(2)	Group 2
Actinides	Lanthanides	89 Ac 2,8,18,32, 18,9,2 Actinium	57 La 2,8,18,18, 9,2 Lanthanum	39 Y 2,8,18,9,2 Yttrium	21 Sc 2,8,9,2 Scandium	(3)				
89 Ac 2,8,18,32, 18,9,2 Actinium	57 La 2,8,18, 18,9,2 Lanthanum	104 Rf 2,8,18,32, 32,10,2 Rutherfordium	72 Hf 2,8,18,32, 10,2 Hafnium	40 Zr 2,8,18, 10,2 Zirconium	22 Ti 2,8,10,2 Titanium	(4)			Key	
90 Th 2,8,18,32, 18,10,2 Thorium	58 Ce 2,8,18, 20,8,2	105 Db 2,8,18,32, 32,11,2 Dubnium	73 Ta 2,8,18, 32,11,2 Tantalum	41 Nb 2,8,18, 12,1 Niobium	23 V 2,8,11,2 Vanadium	(5)		בופכוו	Atc	
91 Pa 2,8,18,32, 20,9,2 Protactinium	59 Pr 2,8,18,21, 8,2	106 Sg 2,8,18,32, 32,12,2 Seaborgium	74 W 2,8,18,32, 12,2 Tungsten	42 Mo 2,8,18,13, 1 Molybdenum	24 Cr 2,8,13,1 Chromium	(6)		Name	Atomic number Symbol	
	60 Nd 2,8,18,22, 8,2 Neodymium	107 Bh 2,8,18,32, 32,13,2 Bohrium	75 Re 2,8,18,32, 13,2 Rhenium	43 Tc 2,8,18,13, 2 Technetium	25 Mn 2,8,13,2 Manganese	Transition Elements			ber	C
93 Np 2,8,18,32, 22,9,2 Neptunium	61 Pm 2,8,18,23, 8,2 Promethium	108 Hs 2,8,18,32, 32,14,2 Hassium	76 Os 2,8,18,32, 14,2 Osmium	44 Ru 2,8,18,15, 1 Ruthenium	26 Fe 2,8,14,2 Iron	Element				
94 Pu 2,8,18,32, 24,8,2 Plutonium	62 Sm 2,8,18,24, 8,2 Samarium	109 Mt 2,8,18,32, 32,15,2 Meitnerium	77 Ir 2,8,18,32, 15,2 Iridium	45 Rh 2,8,18,16, 1 Rhodium	27 Co 2,8,15,2 Cobalt	S (9)				
95 Am 2,8,18,32, 25,8,2 Americium	63 Eu 2,8,18,25, 8,2 Europium	110 111 112 Ds Rg Cn 2,8,18,32, 2,8,18,32, 32,17,1 32,18,1 32,18,2 Darmstadtium Roentgenium Copernicium	78 Pt 2,8,18,32, 17,1 Platinum	46 Pd 2,8,18, 18,0 Palladium	28 Ni 2,8,16,2 Nickel	(10)				
96 Cm 2,8,18,32, 25,9,2 Curium	64 Gd 2,8,18,25, 9,2 Gadolinium	111 Rg 2,8,18,32, 32,18,1 n Roentgenium	79 Au 2,8,18, 32,18,1 Gold	47 Ag 2,8,18, 18,1 Silver	29 Cu 2,8,18,1 Copper	(11)				
97 Bk 2,8,18,32, 27,8,2 Berkelium	65 Tb 2,8,18,27, 8,2 Terbium	112 Cn 2,8,18,32, 32,18,2 Copernicium	80 Hg 2,8,18, 32,18,2 Mercury	48 Cd 2,8,18, 18,2 Cadmium	30 Zn 2,8,18,2 Zinc	(12)				
	66 Dy 2,8,18,28, 8,2 Dysprosium		81 T (2,8,18, 32,18,3 Thallium	49 In 2,8,18, 18,3 Indium	31 Ga 2,8,18,3 Gallium	13 Al 2,8,3 Aluminium	2,3 Boron	ത ഗ	(13)	Group 3
3 3	67 Ho 2,8,18,29, 8,2 Holmium		82 Pb 2,8,18, 32,18,4	50 Sn 2,8,18, 18,4 Tin	32 Ge 3 2,8,18,4 Germanium	14 Si 2,8,4 m Silicon	2,4 Carbon	0 0	(14)	3 Group 4
2,	68 Er 2,8,18,30, 8,2 Erbium		83 Bi 2,8,18, 32,18,5 Bismuth	51 Sb 2,8,18, 18,5 Antimony	33 AS 4 2,8,18,5 m Arsenic	15 P 2,8,5 Phosphorus	2,5 Nitrogen	Z 7	(15)	4 Group 5
∃ ,°	69 Tm 2,8,18,31, 8,2 Thultium		84 Po 2,8,18, 32,18,6	52 Te 2,8,18, 18,6 y Tellurium	34 Se 5 2,8,18,6 Selenium	16 S 2,8,6 us Sulfur	2,6 ח Oxygen	0 %	(16)	5 Group 6
•	70 Yb 2,8,18,32, 8,2 Ytterbium		85 At 2,8,18, 32,18,7 Astatine	53 2,8,18, 18,7 lodine	35 Br 5 2,8,18,7 n Bromine	17 Cl 2,8,7 Chlorine	2,7 Fluorine	T 9	(17)	6 Group 7
103 Lr 2,8,18,32, 32,9,2 Lawrencium	71 Lu 2,8,18,32, 9,2 Lutetium		86 Rn 2,8,18, 32,18,8 Radon	54 Xe 2,8,18, 18,8 Xenon	36 Kr 7 2,8,18,8 Krypton	18 Ar 2,8,8 Argon	2,8 Neon	N e	2 He 2 Helium	7 Group 0