

X757/75/11

Physics Relationships Sheet

TUESDAY, 5 MAY 9:00 AM - 11:00 AM





$$E_p = mgh$$

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

$$Q = It$$

$$V = IR$$

$$R_T = R_1 + R_2 + \dots$$

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

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

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

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

$$P = IV$$

$$P = I^2 R$$

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

$$E_h = cm\Delta T$$

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

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

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

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

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

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

Electron Arrangements of Elements

		87 Fr 2,8,18,32, 18,8,1 Francium	55 Cs 2,8,18,18, 8,1 Caesium	Rubidium	7 8 18 8 1	37	Potassium	2.8.8.1	5 19	Sodium	2,8,1	Na	11	Lithium	, <u> </u>	<u>.</u> .	Hydrogen		エ →	(1)	Group 1
Actinides	Lanthanides	88 Ra 2,8,18,32, 18,8,2 Radium	56 Ba 2,8,18,18, 8,2 Barium	Strontium	Sr	38	Calcium	2.8.8.2	20	Magnesium	2,8,2	Μg	12	Bervllium	י ר	4 0	<u> </u>	(2)			Group 2
		89 Ac 2,8,18,32, 18,9,2 Actinium	57 La 2,8,18,18, 9,2 Lanthanum	Yttrium	7 8 18 9 7	39	Scandium	2.8.9.2	S 21	(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	10,2 Zirconium	Zr 2,8,18,	40	Titanium	2.8.10.2	:	(4)									Key		
90 Th 2,8,18,32, 18,10,2 Thorium	58 Ce 2,8,18, 20,8,2 Cerium	105 Db 2,8,18,32, 32,11,2 Dubnium	73 Ta 2,8,18, 32,11,2 Tantalum	12,1 Niobium	Nb 2,8,18,	41	Vanadium	v 2.8.11.2	23 Y	(5)							Electro		Ato		r
91 Pa 2,8,18,32, 20,9,2 Protactinium	59 Pr 2,8,18,21, 8,2 Praseodymium	106 Sg 2,8,18,32, 32,12,2 Seaborgium	74 W 2,8,18,32, 12,2 Tungsten		Mo 2,8,18,13,	42	Chromium	2.8.13.1	24	(6)		_			2	Name	Electron arrangement	Symbol	Atomic number		
92 U 2,8,18,32, 21,9,2 Uranium	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	2 Technetium	Tc 2,8,18,13,	43	Manganese	2.8.13.2	25	(7)		Transition Elements					ement		ber		רוכיניו לוו לווימופיוויוני לו
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		Ru 2,8,18,15,	4	Iron	2.8.14.2	7 6	(8)		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	1 Rhodium	Rh 2,8,18,16,	45	Cobalt	2.8.15.2	27	(9)		ίς									ר ני
95 Am 2,8,18,32, 25,8,2 Americium	63 Eu 2,8,18,25, 8,2 Europium	110 Ds 2,8,18,32, 32,17,1 Darmstadtium	78 Pt 2,8,18,32, 17,1 Platinum	18,0 Palladium	Pd 2,8,18,	46	Nickel	2.8.16.2	28 N :	(10)											8
96 Cm 2,8,18,32, 25,9,2 Curium	64 Gd 2,8,18,25, 9,2 Gadolinium	Rg 2,8,18,32, 32,18,1 Roentgenium	79 Au 2,8,18, 32,18,1 Gold	18,1 Silver	Ag 2,8,18,	47	Copper	2.8.18.1	29	(11)											
97 Bk 2,8,18,32, 27,8,2 Berkelium	65 Tb 2,8,18,27, 8,2 Terbium	110 111 112 Ds Rg Cn 2,8,18,32, 2,8,18,32, 2,8,18,32, 32,17,1 32,18,1 32,18,2 Darmstadtium Roentgenium Copernicium	80 Hg 2,8,18, 32,18,2 Mercury	18,2 Cadmium	Cd 2,8,18,	48	Zinc	2.8.18.2	30 7 5	(12)											
98 Cf 2,8,18,32, 28,8,2 Californium	66 Dy 2,8,18,28, 8,2 Dysprosium		81 T l 2,8,18, 32,18,3 Thallium	18,3 Indium	ln 2,8,18	49	Gallium	2.8.18.3	3 31	Aluminium	2,8,3	≥	13	Boron	ر د	0 U	7	(13)			Group 3
99 Es 2,8,18,32, 29,8,2 Einsteinium	67 Ho 2,8,18,29, 8,2 Holmium		82 Pb 2,8,18, 3, 32,18,4 m Lead		2,	50	_	.3 2.8.18.4	32	ım Silicon	2,8,4	Si	_		٠ ر	٥ ر	\ \	(14)			3 Group 4
100 Fm 2,8,18,32, 30,8,2 Fermium	68 Er 2,8,18,30, 8,2 Erbium		83 Bi 32,8,18, 4 32,18,5 Bismuth	18,5 Antimony		51		.4 2.8.18.5	> 33	Phosphorus	2,8,5	P		n Nitrogen	² л 2	z	7	(15)			4 Group 5
101 Md 2,8,18,32, 31,8,2 Mendelevium	69 Tm 2,8,18,31, 8,2 Thulium		84 Po 2,8,18, 32,18,6 h Polonium	18,6 ny Tellurium		52		ع ن کا 5 2.8.18.6	34	rus Sulfur	2,8,6	S		n Oxvaen	, c	> ∝	•	(16)			5 Group 6
102 No 2,8,18,32, 32,8,2 Nobelium	70 Yb 2,8,18,32, 8,2 Ytterbium		85 At 3, 2,8,18, 6 32,18,7 M Astatine		2,	\dashv		.6 2.8.18.7	5 35	. Chlorine	2,8,7	CI		n Fluorine	2 7	П		(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 3, 2,8,18, 7 32,18,8 Radon	18,8 Xenon				.7 2.8.18.8	36	ne Argon	2,8,8	Δŗ		Neon	> T	Z =	Hellum	2	He 2	(18)	7 Group 0
			00-J		<u>•</u>		ر د	∞			,										0