

X857/75/11

Physics Relationships sheet

WEDNESDAY, 15 MAY 1:00 PM - 3:30 PM





$$d = vt$$

$$d = \overline{v}t$$

$$s = vt$$

$$s = \overline{v}t$$

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

$$F = ma$$

$$W = mg$$

$$E_w = Fd$$

$$E_p = mgh$$

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

$$Q = It$$

$$V = IR$$

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

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

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

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

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

$$P = IV$$

$$P = I^2 R$$

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

$$E_h = cm\Delta T$$

$$E_h = ml$$

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

$$p_1V_1 = p_2V_2$$

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

$$\frac{V_1}{T_1} = \frac{V_2}{T_2}$$

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

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

$$v = f\lambda$$

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

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

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

$$H = Dw_r$$

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

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 K 2,8,8,1 Potassium	11 Na 2,8,1 Sodium	Lithium	ζ [: ω	1 1 Hydrogen	Group 1 (1)
	Lan	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	Mg 2,8,2 Magnesium	Beryllium	Be	(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 Cerium	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)		ר	Ato	,
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	42 Mo 2,8,18,13, 1 Molybdenum	24 Cr 2,8,13,1 Chromium	(6)		Name	Atomic number Symbol	
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	43 Tc 2,8,18,13, 2 Technetium	25 Mn 2,8,13,2 Manganese	Transition Elements			oer oer	Ú
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 (8)				
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 Ds 2,8,18,32, 32,17,1 Darmstadtium	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	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	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)				
98 Cf 2,8,18,32, 28,8,2 Californium	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	2,8,3 Aluminium	Boron	 .	(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, 32,18,4 Lead	50 Sn 2,8,18, 18,4 Tin	32 Ge 3 2,8,18,4 Germanium	14 Si 2,8,4 m Silicon	Carbon	. n °	(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 2,8,18, 4 32,18,5 8ismuth	51 Sb 2,8,18, 18,5 Antimony	33 As 4 2,8,18,5 am Arsenic	2,8,5 Phosphorus	Z	3 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	52 Te 2,8,18, 18,6 y Tellurium	34 Se 5 2,8,18,6 Selenium	2,8,6	9	ડે ૦ ∞	(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 2,8,18, 32,18,7 n Astatine	53 2,8,18, 18,7 n lodine	35 Br 6 2,8,18,7 n Bromine	2,8,7 Chlorine	 	3 ₇ m 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 e Krypton	18 Ar 2,8,8 e Argon	7	3 Z 10	2 He 2 Helium	7 Group 0
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