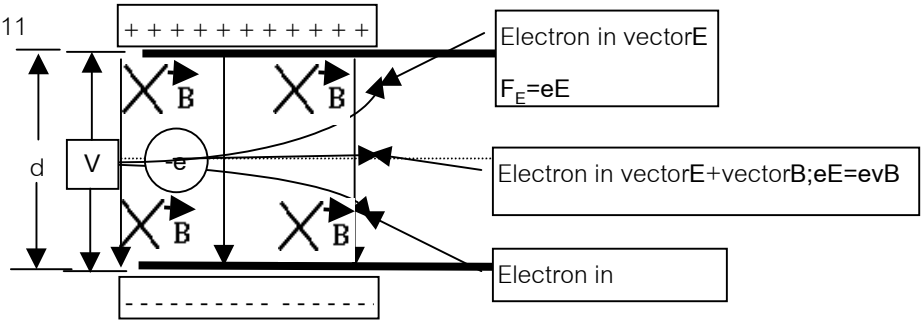
A1 item11



no.	variables	value	Excel_code
1	input B(Tesla)=	1.00E-03	=1e-3
2	input V(V)=	200	=200
3	input d(m)=	0.01	=0.01
4	input E(N/C)=V/d	2.00E+04	=$C$9/$C$10
5	v(m/s)=E/B	2.00E+07	=$C$11/$C$8

A13

A14 item12

no.	variables	value	Excel_code
1	input B(Tesla)=	1.00E-03	=0.001
2	input $v_{electron}$(m/s)=	3.00E+07	=30000000
3	input $R_{electron\ in\ vectorB}$(m)=	0.2	=0.2
4	q(C)/m(kg)=v/(R*B)	1.50E+11	=$C$17/ ($C$18*$C$16)

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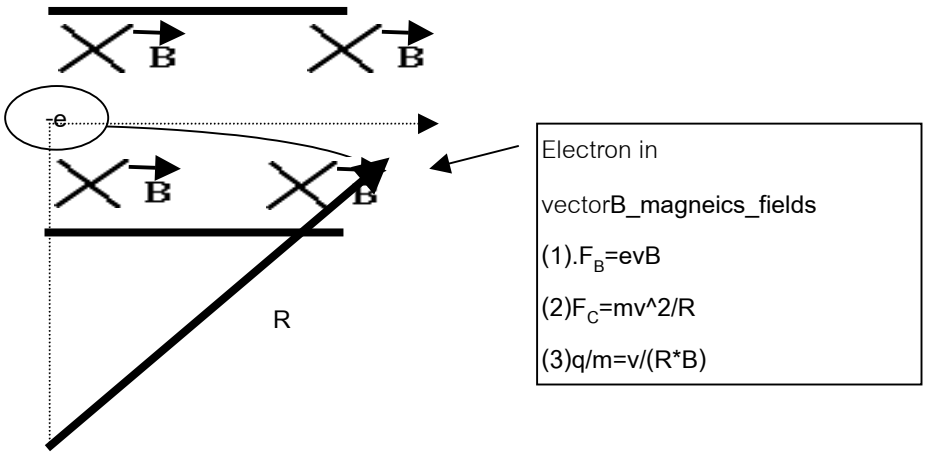

A30

A31 item13 millikan_Oil_drop experiment

no.	variables	value	Excel_code
1	input m_{oil_drop}(kg.)=	1.60E-14	=1.6e-14
2	input g(m/s^2)=	9.80E+00	=9.8

A35	3	input $V_{vertical\_E\_fields}$(V)=	392	=392
A36	4	input $d_{vertical\_E\_fields}$(m)=	0.01	=0.01
A37	5	E(V)=V(V)/d(m)	39200	=$C$35/$C$36
A38	6	q(C)=mg/E	4.00E-18	=$C$33*$C$34/$C$37
A39	7	e(C)=	1.60E-19	=1.6E-19
A40	8	no._of_electron(n)=q/e	2.50E+01	=$C$38/$C$39

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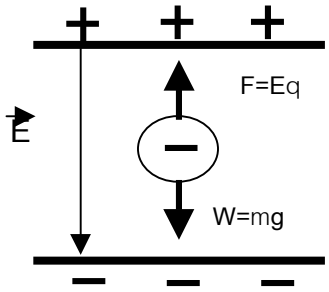


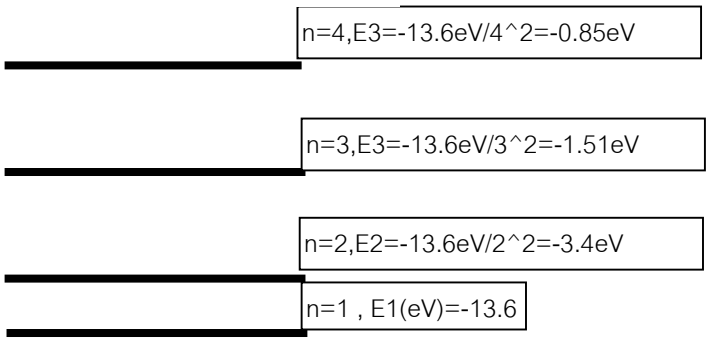
A47 item14 Bohr_H_atom model,Balmer_spectrum seires;$1/\lambda=R_H[1/2^2-1/n^2]$

A48	no.	variables	value	Excel_code
A49	1	$R_H(m^{-1})$=	1.097E+07	=1.09737e+7
A50	2	input n=	3.00E+00	=3
A51	3	$1/\lambda(m^{-1})=R_H[1/2^2-1/n^2]$	1.52E+06	=$D$49*(1/2^2-1/$D$50^2)
A52	4	λ_{max}(nm)=	6.56E+02	=1e+9/$D$51

A53

A54 item15 Bohr_H_atom model,Balmer_spectrum seires;$1/\lambda=R_H[1/2^2-1/n^2]$

A55 Bohr_H_atom ;E_n(eV)=-13.6/n^2



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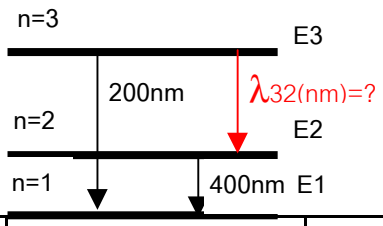
A63	no.	variables	value	Excel_code
A64	1	$R_H(m^{-1})$=	1.097E+07	=1.097E+7
A65	2	input n_i=	3.00E+00	=3
A66	3	$1/\lambda(m^{-1})=R_H[1/2^2-1/n^2]$	1.52E+06	=$D$64*(1/2^2-1/$D$50^2)
A67	4	$\lambda_{max3--->2}$(nm)=	6.56E+02	=1.00e+9/$D$66

A68	5	input n_i=	4.00E+00	=4
A69	6	$1/\lambda(m^{-1})=R_H[1/2^2-1/n^2]$	2.06E+06	=$D$64*(1/2^2-1/$D$68^2)
A70	7	$\lambda_{4--->2}$(nm)=	486.17	=1.00E+9/$D$69
A71	8	$\lambda_{4--->2}(nm)/\lambda_{3-->2}$=	0.74	=$D$70/$D$67
A72				
A73				
A74				
A75	item16_17			

A76	no.	spectrum_series	$n_{i(initial\_state)}$	$n_{f(final\_state)}$
A77	item16	Lyman's series	4	1
A78	item16	Lyman's series	3	1
A79	item17	balmer's series	3	2
A80	10	balmer's series	4	2
A81	11	balmer's series	5	2
A82	12	balmer's series	6	2
A83	13	balmer's series	10	2
A84	14	balmer's series	100	2
A85	15	balmer's series	1000	2
A86	16	balmer's series	infinity	2
A87	17	color	wave_length(nm)	
A88	18	violet	380-450	
A89	19	blue	450-500	
A90	20	green	500-570	
A91	21	yellow	570-590	
A92	22	orange	590-610	
A93	23	red	610-760	
A94				
A95	item18			
A96				
A97				
A98				

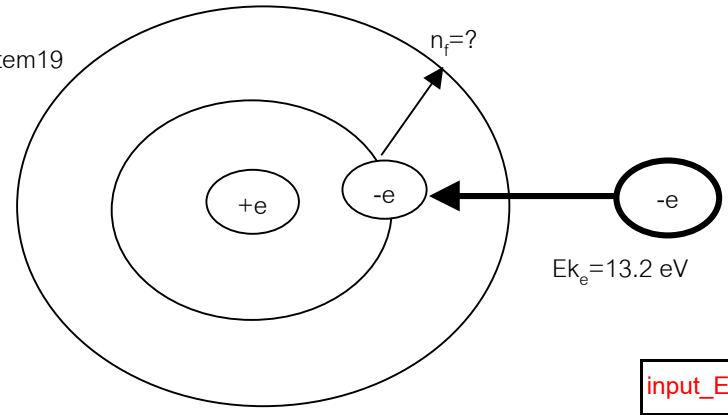


A99	no.	variables	value	excel_code
A100	1	$E_2-E_1=hf_{21}=hc/\lambda_{21}$	2nd Bohr hypothesis	
A101	2	$E_3-E_1=hf_{31}=hc/\lambda_{31}$		

A102	3	$E_3-E_2=hf_{31}-hf_{21}=hc/\lambda_{31}-hc/\lambda_{21}$		
A103	4	$E_3-E_2=hf_{32}=hc/\lambda_{32}$		
A104	5	$hc/\lambda 32=hc/\lambda_{31}-hc/\lambda_{21}$		
A105	6	$1/\lambda 32=1/\lambda_{31}-1/\lambda_{21}$		Excel_code
A106	7	input λ_{21} (nm)=	400	=400
A107	8	input λ_{31} (nm)=	200	=200
A108	9	$1/\lambda_{32}=1/\lambda_{31}-1/\lambda_{21}$	0.0025	=1/$D$107-1/$D$106
A109	10	cal.λ_{32} (nm)=	400	=1/$D$108

A110

A111 item19



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	input_$Ek_{electron_collision}$(eV)
	13.2

H_atom

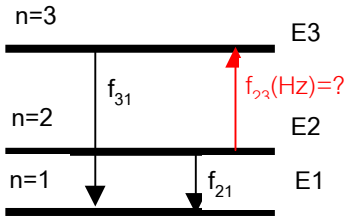
A119	no,	n	En(eV)=-13.6/n^2	ΔE=[En_f(excited_state)-En_1](eV)
A120	1	1	-13.60	10.20
A121	2	2	-3.40	12.09
A122	3	3	-1.51	12.75
A123	ANS4	4	-0.85	13.06
A124	5	5	-0.54	13.22
A125	6	6	-0.38	13.32
A126	7	7	-0.28	13.39
A127	8	8	-0.21	13.43
A128	9	9	-0.17	13.46
A129	10	10	-0.14	13.60
A130	11	100	0.00	13.60

A131 ITEM20

A132	no.	variables	value	Excel_code
A133	1	$E_3-E_1=hf_{31}$,(J)	1.93E-18	=1.934E-18
A134	2	$E_2-E_1=hf_{21}$,(J)	1.63E-18	=1.633E-18
A135	3	$E_3-E_2=hf_{32}=hf_{31}-hf_{21}$	3.01E-19	=$D$133-$D$134

A136	4	planck's constant(h,J.s)	6.63E-34	=6.63E-34
A137	5	f_{32}(Hz.)=(E_3-E_2)/h	4.54E+14	=$D$135/$D$136

A138

A139 

A140

A141

A142

A143 physicsmatayom_link

A144 Kru_sathaporn_promdeeraj

A145 udonpittayanukoon school,77srisuk rd.,muang,udonthani,41000,thailand

A146 http://www.vcharkarn.com/vblog/32546

A147 http://sites.google.com/site/physicsmatayom

A148 http://www.geocities.com/sathapornpromdee

A149 http://physicsmatayom.podbean.com/

A150 http://www.youtube.com/sathapornprom

A151 http://sathaporn.exteen.com/

A152 http://www.editgrid.com/user/physicsmatayom

SELF_TEST	check_ans	mark	mark%	note
FALSE	0	0	0%	manetiges fields
FALSE	0			vertical_potential in E_fields
FALSE	0			vertical_distance between electrode in E
FALSE	0			vertical_E_fields
FALSE	0			electron_linear motion in vectorE+vecto

SELF_TEST	check_ans	mark	mark%	note
FALSE	0	0	0%	manetiges fields
FALSE	0			electron_circular motion in vectorB
FALSE	0			electron_radius in vectorB
FALSE	0			$F_C=F_B$;mv^2/R=qvB

SELF_TEST	check_ans	mark	mark%	note
FALSE	0	0	0%	oil_drop_mass
FALSE	0			gravity

FALSE	0			vertical_voltage_fields
FALSE	0			vertical_electrode_distancefields
FALSE	0			vertical_E_fields
FALSE	0			Eq=mg
FALSE	0			electron_charge
FALSE	0			q=n*e

SELF_TEST	check_ans	mark	mark%	note
FALSE	0	0	0%	Rydberg's constant
FALSE	0			excted state=3
FALSE	0			(1/λmax)_min
FALSE	0			1nm=1e-9 m

SELF_TEST	check_ans	mark	sum_mark	sum_mark%
1.097E+07	TRUE	1	1	13%
	FALSE	0		
	FALSE	0		
	FALSE	0		

	FALSE	0	
	FALSE	0	
	FALSE	0	
	FALSE	0	

		enegy	planck's constant	speed of light	
	constant_value	1eV/J	h(J.s)	c(m/s)	
		1.6E-19	6.63E-34	3.00E+08	
En_i=-13.6eV/n_i^2	En_f=-13.6eV/n_f^2	[En_i-En_f](eV)	f(Hz)=[Eni-En](eV)/h=	λ(nm)=c/f	spectrum_color
-0.85	-13.6	12.75	3.08E+15	97.50	UV
-1.51	-13.6	12.09	2.92E+15	102.83	UV
-1.51	-3.4	1.89	4.56E+14	658.13	RED
-0.85	-3.4	2.55	6.15E+14	487.50	BLUE
-0.54	-3.4	2.86	6.89E+14	435.27	VIOLET
-0.38	-3.4	3.02	7.29E+14	411.33	VIOLET
-0.14	-3.4	3.26	7.88E+14	380.86	VIOLET
0.00	-3.4	3.40	8.20E+14	365.77	VIOLET
0.00	-3.4	3.40	8.21E+14	365.63	VIOLET
0.00	-3.4	3.40	8.21E+14	365.63	VIOLET

self_test ckeck_ans mark sum_mark sum_mark

self_test	ckeck_ans	mark	sum_mark	sum_mark%
400	TRUE	1	4	100%
200	TRUE	1		
0.0025	TRUE	1		
400	TRUE	1		

En_f-En_2	En_f-En_3	En_f-En_3	En_f-En_4	En_f-En_5
-10.20	-12.09	-12.09	-12.75	-13.06
0.00	-1.89	-1.89	-2.55	-2.86
1.89	0.00	0.00	-0.66	-0.97
2.55	0.66	0.66	0.00	-0.31
2.86	0.97	0.97	0.31	0.00
3.02	1.13	1.13	0.47	0.17
3.12	1.23	1.23	0.57	0.27
3.19	1.30	1.30	0.64	0.33
3.23	1.34	1.34	0.68	0.38
3.26	1.38	1.38	0.71	0.41
3.40	1.51	1.51	0.85	0.54

self_test	ckeck_ans	mark	sum_mark	sum_mark%
1.93E-18	TRUE	1	1	20%
	FALSE	0		
	FALSE	0		

	FALSE	0
	FALSE	0

_fields

rB