

L2-CHEMR



NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

QUALIFY FOR THE FUTURE WORLD
KIA NOHO TAKATŪ KI TŌ ĀMUA AO!

Level 2 Chemistry, 2019

2.00 p.m. Monday 11 November 2019

RESOURCE BOOKLET

Refer to this booklet to answer the questions in your Question and Answer Booklets.

Check that this booklet has pages 2–3 in the correct order and that none of these pages is blank.

YOU MAY KEEP THIS BOOKLET AT THE END OF THE EXAMINATION.

Formulae for 91164: *Demonstrate understanding of bonding, structure, properties and energy changes*

$$n = cV$$

$$n = \frac{m}{M}$$

Formulae for 91166: *Demonstrate understanding of chemical reactivity*

$$K_w = [\text{H}_3\text{O}^+][\text{OH}^-] = 1 \times 10^{-14} \text{ at } 25^\circ\text{C}$$

$$\text{pH} = -\log[\text{H}_3\text{O}^+] \quad [\text{H}_3\text{O}^+] = 10^{-\text{pH}}$$

PERIODIC TABLE OF THE ELEMENTS

Atomic number		Molar mass/g mol ⁻¹																	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
1	2																	3	4
H 1.0	He 4.0																	Li 6.9	Be 9.0
11	12																	Na 23.0	Mg 24.3
19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	
K 39.1	Ca 40.1	Sc 45.0	Ti 47.9	V 50.9	Cr 52.0	Mn 54.9	Fe 55.9	Co 58.9	Ni 58.7	Cu 63.6	Zn 65.4	Ga 69.7	Ge 72.6	As 74.9	Se 79.0	Br 79.9	Kr 83.8	Rb 85.5	
37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	
Sr 87.6	Y 88.9	Zr 91.2	Nb 92.9	Mo 95.9	Tc 98.9	Ru 101	Rh 103	Pd 106	Ag 108	Cd 112	In 115	Sn 119	Sb 122	Te 128	I 127	Xe 131	Cs 133		
87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	
Fr 223	Ra 226	Ac 227	Th 232	Pa 231	U 238	Np 237	Pu 239	Am 241	Cm 244	Bk 249	Cf 251	Es 252	Fm 257	Md 258	Mc 288	Lr 262	Lu 175	Hf 179	
55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	
Cs 133	Ba 137	La 139	Ce 140	Pr 141	Nd 144	Pm 147	Sm 150	Eu 152	Gd 157	Tb 159	Dy 163	Ho 165	Er 167	Tm 169	Yb 173	Ta 181	W 184	Re 186	
81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	
Tl 204	Pb 207	Bi 209	Po 210	At 210	Rn 222	Fr 223	Ra 226	Ac 227	Th 232	Pa 231	U 238	Np 237	Pu 239	Am 241	Cm 244	Bk 249	Cf 251	Es 252	
113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132
Nh 286	Fl 288	Mc 288	Lv 289	Ts 289	Og 294	Rg 272	Ds 271	Mt 268	Sg 263	Db 262	Rf 261	Lr 262	Lu 175	Hf 179	Ta 181	W 184	Re 186	Os 190	
101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
Hg 201	Tl 204	Pb 207	Bi 209	Po 210	At 210	Rn 222	Fr 223	Ra 226	Ac 227	Th 232	Pa 231	U 238	Np 237	Pu 239	Am 241	Cm 244	Bk 249	Cf 251	

57	58	59	60	61	62	63	64	65	66	67	68	69	70
Lanthanide Series	La 139	Ce 140	Pr 141	Nd 144	Pm 147	Sm 150	Gd 157	Tb 159	Dy 163	Ho 165	Er 167	Tm 169	Yb 173
Actinide Series	89	90	91	92	93	94	95	96	97	98	99	100	101
	Ac 227	Th 232	Pa 231	U 238	Np 237	Pu 239	Am 241	Cm 244	Bk 249	Cf 251	Es 252	Fm 257	No 259

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