

# NOMR ATOM, NOMOR MASSA, ISOTON, ISOTOP DAN ISOBAR

menjelaskan pengertian nomor atom, nomoar massa, isotop, isoton dan isobar



# WACANA

## sistem periodik unsur

Dalam Sistem Periodik Unsur (SPU), setiap unsur ditempatkan berdasarkan nomor atomnya. Susunan ini menunjukkan bahwa identitas suatu unsur ditentukan oleh jumlah proton dalam inti atom. Namun demikian, unsur-unsur dalam SPU dapat memiliki variasi struktur inti yang tidak tampak langsung dari penempatan periodiknya. Pada beberapa unsur terdapat atom-atom yang memiliki nomor atom sama tetapi massa berbeda, demikian pula ada unsur berbeda yang memiliki kesamaan tertentu dalam komposisi inti, maupun unsur yang berbeda nomor atomnya tetapi memiliki massa total yang sama. Variasi inilah yang kemudian dikenal dalam konsep isotop, isoton, dan isobar

**SISTEM PERIODIK UNSUR-UNSUR KIMIA**

Metals: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 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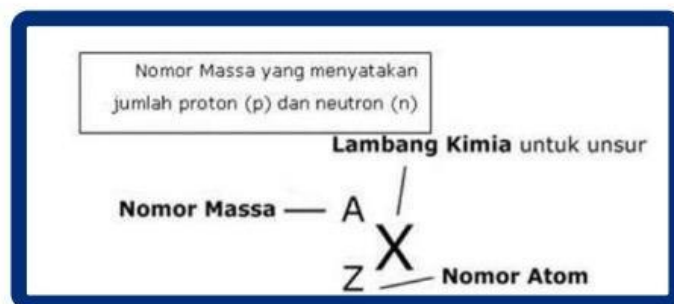
Dalam materi ini kalian akan mempelajari variasi yang dapat terjadi pada inti atom, khususnya yang berkaitan dengan perbedaan jumlah neutron, kesamaan neutron pada unsur berbeda, dan kesetaraan nomor massa antaratom. Ketiga fenomena ini diperkenalkan melalui konsep isotop, isoton, dan isobar yang akan membantu kalian memahami keanekaragaman inti atom. Melalui contoh dan ilustrasi yang disediakan, kalian akan dapat mengenali perbedaan masing-masing konsep serta hubungannya dengan karakteristik atom.





# NOMOR ATOM

- Jumlah muatan positif (nomor atom) dilambangkan dengan  $Z$ . Jika atom bersifat netral, maka jumlah muatan positif (proton) sama dengan jumlah muatan negatif (elektron), sehingga  $Z = \text{jumlah proton} = \text{jumlah elektron}$  atau  $Z = n_p = n_e$ , dengan  $n$  adalah jumlah partikel.
- Jika atom membentuk ion, maka nilai  $Z$  tidak lagi sama dengan jumlah elektron. Ion adalah atom bermuatan akibat kehilangan elektron (membentuk ion positif) atau mendapatkan elektron (membentuk ion negatif).







## NOMOR MASSA

Nomor atom (Z) menunjukkan jumlah Proton dalam inti atom.

Nomor atom (Z) = Jumlah Proton (P) = Jumlah elektron (e)

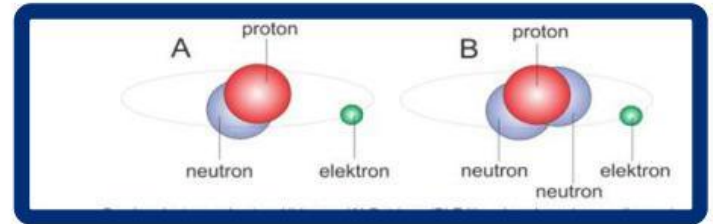
Nomor Massa (A) = Proton (Z) + Neutron (n)





## KAJIAN TEORI

Isotop adalah atom-atom yang memiliki nomor atom yang sama namun memiliki nomor massa yang berbeda. Dengan kata lain sebuah unsur yang memiliki jumlah proton dan elektron sama dapat memiliki jumlah neutron yang berbeda, itulah yang dinamakan dengan isotop.





## ISOBAR

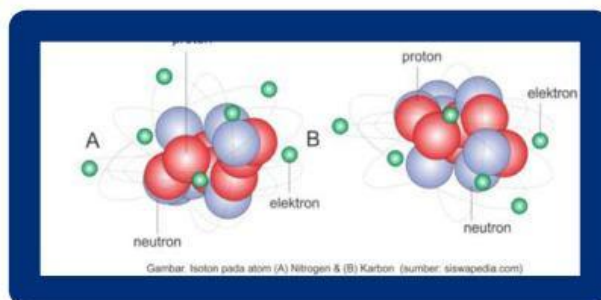
Isobar adalah atom-atom dari unsur yang berbeda tetapi memiliki nomor massa (A) yang sama.

Contoh:

Natrium dan Magnesium

## ISOTON

Isoton adalah unsur-unsur yang berbeda namun memiliki jumlah neutron yang sama





# TERIMA KASIH