

Program Memory

```
#include <stdio.h>
#include <math.h>
#define E0 8.85e-12 // vacuume permittivity C^2/Nm^2
// Structure Type Definition
typedef struct
{
    double qe; // Electron particle charge (Coulombs)
    double qn; // Nucleus particle charge (Coulombs)
    double r; // Distance between nucleus and electron in meters
    double force; // force between particles
} PARTICLES;
// Function Prototype
double computeForce(PARTICLES);
/*-----*/
void main()
{
    PARTICLES prcls = {-1.602e-19, 3.204e-19, 1e-12 };
    prcls.force = computeForce(prcls);
    printf("Charges are electron: %.3e C, nucleus %.3e C\n",
           prcls.qe, prcls.qn);
    printf("Distance between electron and nucleus is %.3e m\n", prcls.r);
    printf("The force between electron and nucleus is %.3e N\n", prcls.force);
}
/*-----*/
double computeForce(PARTICLES p)
{
    double force;
    force = 1.0/(4.0*M_PI*E0);
    force = force*p.qe*p.qn;
    force = force/pow(p.r,2);
    return(force);
}
```

Working Memory

prcls

qe	-1.602e-19
qn	3.204e-19
r	1e-12
force	4.62e-4

Force - 8.99e9 - 4.62e-28
4.62e-4

Console

Charges are electron: 1.602e-19 C, nucleus 3.04e19 C.
Distance between electron and nucleus is 1.00e-12 m.
He force between electron and nucleus is 4.62e-4 N

CPU

Program Memory

```
#include <stdio.h>
void main()
{
    double arr[8] = { 2.18, 14.2, 18.4, 3.2 };
    double x;
    int ix;
    x = 19.2;
    ix = 3;
    arr[5] = 12.3;
    arr[6] = (arr[5] - arr[ix-2]) * arr[3];
    arr[7] = x;
}
```

Working Memory

arr[] {2.18, 14.2, 18.4,
3.1, 12.3, -6.08, 19.2}

x - 19.2

ix - 3

CPU

