



#include

Include file bevat **prototypes**
(code zit in library die meegelinkt wordt)

*/*oops include vergeten!*/*

```
int main() {
    printf("%.15f", sin(1.2));
    getchar();
    return 0;
}
```

Warn: Call to function 'sin' with no prototype
Warn: Call to function 'printf' with no prototype
Warn: Call to function 'getchar' with no prototype

uitvoer: 0.000000000000000

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#include

Include file bevat **declaraties**
(definities zitten in library die meegelinkt wordt)

```
#include <stdio.h>
#include <math.h>
```

```
int main() {
    printf("%.15f", sin(1.2));
    getchar();
    return 0;
}
```

Error: Extra parameter in call to sin

Oops... ik bedoelde 1.2

Output (na verbetering): 0.932039085967226

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Macro's

Zonder argumenten

! Hebben we al gezien bij array's

```
#define AANTAL 10
int a[AANTAL];
int i;
for (i=0; i<AANTAL; ++i) {
    a[i]=0;
}
```

! In voorbeeld 8-1 is PI
gedefinieerd als 3.14
" Het is **niet** nodig om zelf PI te
definiëren (is al in math.h gedaan).

```
#include <math.h>
```

```
int main() {
    printf("%.15f", M_PI);
    getchar();
    return 0;
}
```

Uitvoer: 3.141592653589793

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Macro's

Met argumenten

! Voorbeeld 8-3

```
#include <stdio.h>
#include <math.h>
```

```
#define OPP_BOL(d) M_PI*d*d
```

```
int main() {
    printf("%.15f\n", OPP_BOL(10));
    printf("%.15f\n", OPP_BOL(5+5));
    getchar();
    return 0;
}
```

Output:
314.159265358979326
45.707963267948969



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Macro's

Met argumenten

! Voorbeeld 8-3 verbeterde versie

```
#include <stdio.h>
#include <math.h>
```

```
#define OPP_BOL(d) ((M_PI)*(d)*(d))
```

```
int main() {
    printf("%.15f\n", OPP_BOL(10));
    printf("%.15f\n", OPP_BOL(5+5));
    getchar();
    return 0;
}
```

Output:
314.159265358979326
314.159265358979326

```
#include <stdio.h>
#include <math.h>
```

```
#define OPP_BOL(d) ((M_PI)*(d)*(d))
```

```
int main() {
    int i=10;
    printf("%.15f\n", OPP_BOL(i++));
    printf("%d\n", i);
    getchar();
    return 0;
}
```

Output:
314.159265358979326
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No Macro's

Gebruik functies!

! Voorbeeld 8-3 verbeterde versie

```
#include <stdio.h>
#include <math.h>
```

```
double opp_bol(double d) {
    return M_PI*d*d;
}
```

```
int main() {
    int i=10;
    printf("%.15f\n", opp_bol(10));
    printf("%.15f\n", opp_bol(5+5));
    printf("%.15f\n", opp_bol(i++));
    printf("%d", i);
    getchar();
    return 0;
}
```

Output:
314.159265358979326
314.159265358979326
314.159265358979326
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