

# 課題2

どちらでもOK

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

```
int computeFactorial(int m){  
    int i;  
    int factorial=1;  
    for(i=1; i<=m; i++){  
        factorial *= i;  
    }  
  
    return factorial;  
}
```

```
int computeFactorial(int m);  
  
int computeFactorial(int m){  
    int i;  
    int factorial=1;  
    for(i=1; i<=m; i++){  
        factorial *= i;  
    }  
  
    return factorial;  
}
```

関数プロトタイプ宣言  
+  
関数定義

```
int main(void){  
  
    int n;  
  
    scanf("%d", &n);  
  
    printf("factorial of %d is %d\n", n, computeFactorial(n));  
  
    return 0;  
}
```

呼び出す前に宣言が必要

# 課題2(再帰 ver.)

```
#include <stdio.h>

int computeFactorial(int m){
    if(m == 1){
        return 1;
    }
    else{
        return m*computeFactorial(m-1);
    }
}
```

自分自身の呼び出し  
再帰という

```
int main(void){

    int n;

    scanf("%d", &n);

    printf("factorial of %d is %d\n", n, computeFactorial(n));

    return 0;
}
```

# 課題6

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

関数プロトタイプ宣言

```
int quad(int a, int b, int c, float *r1, float *r2);
```

```
int main(void)
```

```
{
    int a,b,c;
    printf("Enter the three coefficients");
    printf("of a quadratic equation.\n");
    scanf("%d %d %d", &a, &b, &c);
```

```
    printf("%dx^2 + %dx + %d\n", a, b, c);
```

```
    float x1, x2;
    float *r1, *r2;
    r1 = &x1;
    r2 = &x2;
```

r1, r2はポインタ変数

```
    int result = quad(a, b, c, r1, r2);
```

```
    if(result == -1){
        return -1;
    }
```

```
    if(result == 0){
        printf("x1 = %lf + %lfi, x2 = %lf - %lfi\n",
            *r1, *r2, *r1, *r2);
    }
    else if(result != -1){
        printf("x1 = %lf, x2 = %lf\n", *r1, *r2);
    }
}
```

```
return 0;
```

```
}
```

アドレスを渡す

```
int quad(int a, int b, int c, float *r1, float *r2)
{
    if(a == 0){
        return -1;
    }
```

```
    int det;
    float d;
    det = b*b - 4*a*c;
```

ポインタの中身にアクセスするには\*を使う

```
    if( det == 0){
        *r1 = *r2 = -b/(2.0*a);
        return 1;
    }
```

```
    else if(det > 0){
        d = sqrt((double)det);

        *r1 = (-b+d)/(2.0*a);
        *r2 = (-b-d)/(2.0*a);
```

```
    return 2;
```

```
    } else{
        d = sqrt(fabs((double)det));
```

```
        *r1 = (float)(-b/(2.0*a));
        *r2 = (float)(d/(2.0*a));
```

```
    return 0;
```

```
    }
```

# 課題6

- ポインタ

```
float x1, x2;  
float *r1, *r2;  
r1 = &x1;  
r2 = &x2;
```

r1, r2はポインタ変数

```
int result = quad(a, b, c, r1, r2);
```

アドレスを渡す

- 参照

```
float r1, r2;
```

r1, r2はfloat型の変数

```
int result = quad(a, b, c, &r1, &r2);
```

参照を渡す