付録 B 章末問題解答

```
/* 第 3 章章末問題 (1) の解答 */
#include <stdio.h>
int main(void)
{
    printf("98765432\n");
    printf("田中敏幸\n");
    return 0;
}

/* 第 3 章章末問題 (2) の解答 */
#include <stdio.h>
int main(void)
{
    int a;
    double b;
    char c;
    a = 123;
    b = 456.789;
    c = 'x';
    printf("seisu=%d\n", a);
    printf("jissu=%f\n", b);
    printf("moji=%c\n", c);
    return 0;
}
```

```
/* 第 4 章章末問題 (1) の解答 */
#include <stdio.h>
int main(void)
{
    double x, y;
    printf("input y ->");  scanf("%lf", &y);
    x  = y / 40.0;
    printf("y=%f, x=%f\n", y, x);
    return 0;
}

/* 第 4 章章末問題 (2) の解答 */
#include <stdio.h>
int main(void)
{
    int i, j , wa, sa;
    double x, y, seki, sho;
    printf("input i ->");  scanf("%d", &i);
    printf("input j ->");  scanf("%d", &j);
    printf("input x ->");  scanf("%lf", &x);
    printf("input y ->");  scanf("%lf", &y);
    wa = i+j;
    sa = i-j;
    seki = x*y;
    sho  = x/y;
    printf("i+j=%d\n", wa);
    printf("i-j=%d\n", sa);
    printf("x*y=%f\n", seki);
    printf("x/y=%f\n", sho);
    printf("\n");
    printf("i+j=%d, i-j=%d, x*y=%f, x/y=%f\n",wa,sa,seki,sho);
    return 0;
 }
```

```
/* 第4章章末問題(3)の解答 */
#include <stdio.h>
int main(void)
{
    int  k, MAX=10;
    printf("input k=? ");
    scanf("%d", &k);
    if(k<MAX)       printf("small\n");
    else if(k==MAX) printf("equal\n");
    else            printf("large\n");
    return 0;
}

/* 第4章章末問題(4)の解答 */
#include <stdio.h>
int main(void)
{
    int  year;
    printf("input year =? ");  scanf("%d", &year);
    if(year%4==0 && year%100!=0){
        printf("閏年\n");
    }else if(year%400==0){
        printf("閏年\n");
    }else{
        printf("閏年ではない\n");
    }
    return 0;
}

/* 第4章章末問題(5)の解答 */
#include <stdio.h>
int main(void)
```

```
{
    int  i, n, sum=0;
    printf("please input n? ");  scanf("%d", &n);
    i=1;
    while(i<=n){
        sum+=i;
        i++;
    }
    printf("total = %d\n",sum);
    return 0;
}

/* 第 4 章章末問題 (6) の解答 */
#include <stdio.h>
int main(void)
{
    double  t, v, y;
    for(t=0.0; t<=1.01; t+=0.1){    /* 丸め誤差を考慮 */
        v = 9.8 * t;
        y = 9.8 * t * t / 2.0;
        printf("t=%f, v=%f, y=%f\n", t, v, y);
    }
    return 0;
}

/* 第 5 章章末問題 (1) の解答 */
#include <stdio.h>
double kansu(double x, double y);
int main(void)
{
    double x, y, z;
    printf("please input x? ");  scanf("%lf", &x);
    printf("please input y? ");  scanf("%lf", &y);
```

```
    z = kansu(x, y);
    printf("result = %f\n", z);
    return 0;
}

double kansu(double x, double y)
{
    double z;
    z = x*x + y*y;
    return z;
}

/* 第5章章末問題(2)の解答 */
#include <stdio.h>
#define  MAX  10
int main(void)
{
    int  k;
    printf("input k=? ");  scanf("%d", &k);
    if(k<MAX)       printf("small\n");
    else if(k==MAX) printf("equal\n");
    else            printf("large\n");
    return 0;
}

/* 第5章章末問題(3)の解答 */
#include <stdio.h>
#define  sqr(a)  ((a)*(a))
int main(void)
{
    int x, y;
    double p, q, r;
    printf("x = ");  scanf("%d", &x);
```

```
    printf("y = ");  scanf("%d", &y);
    p = (double)sqr(x+y);
    q = (double)sqr(x) * (double)sqr(y);
    r = (double)sqr(x) / (double)sqr(y);
    printf("sqr(x+y) = %f\n", p);
    printf("sqr(x)*sqr(y) = %f\n", q);
    printf("sqr(x)/sqr(y) = %f\n", r);
    return 0;
}

/* 第5章章末問題(4)の解答 */
#include <stdio.h>
#define  N  5
double seki(double a[N]);
int main(void)
{
    int i;
    double a[N], result;
    for(i=0; i<=N-1; i++){
        printf("a[%d] = ", i);  scanf("%lf", &a[i]);
    }
    result = seki(a);
    printf("result = %f\n", result);
    return 0;
}

double seki(double a[N])
{
    int i;
    double multi=1.0;
    for(i=0; i<=N-1; i++){
        multi *= a[i];
    }
```

```
    return multi;
}

/* 第5章章末問題(5)の解答 */
#include <stdio.h>
#define  N  2
void keisan(int a[N][N], int b[N], int c[N]);
int main(void)
{
    int i, j, x, a[N][N], b[N], c[N];
    for(i=0; i<=N-1; i++){
        for(j=0; j<=N-1; j++){
            printf("a[%d][%d]=", i, j);  scanf("%d", &x);
            a[i][j] = x;
        }
    }
    for(i=0; i<=N-1; i++){
        printf("b[%d] = ", i);
        scanf("%d", &x);
        b[i] = x;
    }
    printf("\n");
    keisan(a, b, c);
    for(i=0; i<=N-1; i++){
        printf("c[%d] = %d\n", i, c[i]);
    }
    return 0;
}

void keisan(int a[N][N], int b[N], int c[N])
{
    int i, j;
    for(i=0; i<=N-1; i++){
```

```
        c[i]=0;
        for(j=0; j<=N-1; j++){
            c[i] += a[i][j] * b[j];
        }
    }
}

/* 第 6 章章末問題 (1) の解答 */
#include <stdio.h>
int main(void)
{
    double x, y;
    FILE *fp;
    fp = fopen("curve.dat", "w");
    for(x=0.0; x<=2.01; x+=0.1){    /* 丸め誤差を考慮 */
        y = x*x-2.0*x+1.0;
        fprintf(fp, "%f,%f\n", x, y);
    }
    fclose(fp);
    return 0;
}

/* 第 7 章章末問題 (1) の解答 */
#include <stdio.h>
void keisan(double x, double y, double *seki, double *sho);
int main(void)
{
    double x, y, seki, sho;
    printf("x = ");  scanf("%lf", &x);
    printf("y = ");  scanf("%lf", &y);
    keisan(x, y, &seki, &sho);
    printf("x*y = %f\n", seki);
    printf("x/y = %f\n", sho);
```

```
    return 0;
}

void keisan(double x, double y, double *seki, double *sho)
{
    *seki = x * y;
    *sho = x / y;
}

/* 第7章章末問題(2)の解答 */
#include <stdio.h>
int main(void)
{
    char *name[5]={"Tanaka", "Katsumata", "Kamada",
                   "Komatsu", "Nitta"};
    int i;
    for(i=0; i<5; i++){
        printf("%s\n",name[i]);
    }
    return 0;
}

/* 第7章章末問題(3)の解答 */
#include <stdio.h>
struct batting {
    char name[12];
    double ave;
    int   homer;
};

int main(void)
{
    int i;
```

```
    struct batting batter[3];
    batter[0].name  = "Matsui";
    batter[0].ave   = 0.281;
    batter[0].homer = 12;
    batter[1].name  = "Ichiro";
    batter[1].ave   = 0.361;
    batter[1].homer = 4;
    batter[2].name  = "Takahashi";
    batter[2].ave   = 0.295;
    batter[2].homer = 8;
    for(i=0; i<3; i++){
        printf("%s  \t%.3f, \t%2d\n", batter[i].name,
                batter[i].ave, batter[i].homer);
    }
    return 0;
}
```