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

struct point {
	double x,y;
};

struct polygon
{
	int num;
	struct point *points;
};

struct polygon *make_polygon(void);

void read_points(struct polygon *);

double compute_area(struct polygon *);


int main(){
	struct polygon *p;
	double area;

	p=make_polygon();

	area = compute_area(p);
	printf("多角形の面積=%lf¥n",area);

	free(p->points);
	free(p);

	return 0;
}
```

```
struct polygon *make_polygon(){
	struct polygon *p;
	p=(struct polygon *)malloc(sizeof(struct polygon ));

	printf("頂点の個数を入力: ");
	scanf("%d",&p->num);

	p->points = (struct point *)malloc(p->num * sizeof(struct point));

	read_points(p);

	return p;
}

void read_points(struct polygon *p){
	int i;

	for(i=0;i<p->num;i++){
		printf("%d 番目の頂点を入力: ",i+1);
		scanf("%lf %lf",&p->points[i].x,&p->points[i].y);
	}
}

double compute_area(struct polygon *p){
	double area =0;
	//自分でこーでぃんぐ
	double area1 =0;
	double area2=0;

	for(int i=1;i<p->num;i++){
		area1 += p->points[i].x * p->points[i+1].y;
	}

	area2 += p->num * (area1) / 2;

	area = area2 * 1/2;
```

```
    return area;
}
```

実行結果

```
頂点の個数を入力: 4
1 番目の頂点を入力: 1 1
2 番目の頂点を入力: 5 3
3 番目の頂点を入力: 3 7
4 番目の頂点を入力: 2 7
多角形の面積=56.000000
```