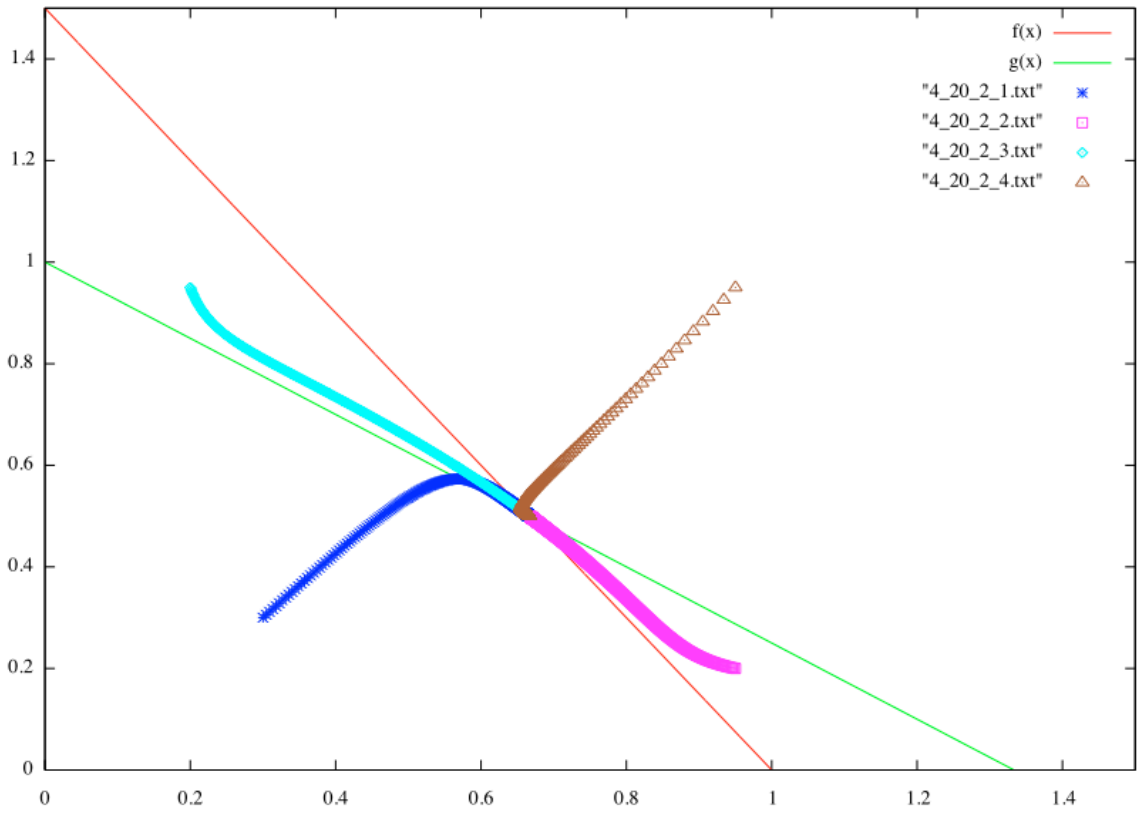
08-153031
教養学部統合自然科学科統合生命コース３年　木戸口　航

結果



(2)

4_20_2.c

```c
#include <stdio.h>

double lmd = 5;

double f_x(double c1, double c2, double x, double y, double t) {
    return c1 * (1 - x) * x - c2 * x * y;
}

double f_y(double c1, double c2, double x, double y, double t) {
    return c1 * (1 - y) * y - c2 * x * y;
}

int main(void) {
    double dlt = 0.01;
    double x = 0.95;
    double y = 0.95;
    double t = 0;
    double k1, k2, k3, k4;
    double l1, l2, l3, l4;

    double a = 3;
    double b = 2;
    double c = 4;
    double d = 3;

    int i;

    for (i=0; i<1000; i++) {
        printf("%f %f\n", x, y);
        k1 = f_x(a, b, x, y, t);
        l1 = f_y(c, d, x, y, t);

        k2 = f_x(a, b, x + (dlt / 2) * k1, y + (dlt / 2) * l1, t + dlt / 2);
        l2 = f_y(c, d, x + (dlt / 2) * k1, y + (dlt / 2) * l1, t + dlt / 2);

        k3 = f_x(a, b, x + (dlt / 2) * k2, y + (dlt / 2) * l2, t + dlt / 2);
        l3 = f_y(c, d, x + (dlt / 2) * k2, y + (dlt / 2) * l2, t + dlt / 2);

        k4 = f_x(a, b, x + dlt * k3, y + dlt * l3, t + dlt);
        l4 = f_y(c, d, x + dlt * k3, y + dlt * l3, t + dlt);

        x += (dlt / 6) * (k1 + 2*k2 + 2*k3 + k4);
        y += (dlt / 6) * (l1 + 2*l2 + 2*l3 + l4);
        t += dlt;
    }

}
```