syms z y x answ ay ax y\_vect

disp('Уравнение: ');

disp(('x\*Dy+y = y^2\*log(x);'));

disp(('Это ДУ Бернулли.'));

ax = 0:0.1:10;

answ = dsolve('Dy\*x + y ==(y^2)\*log(x)','y(1)=1');

answ = subs(answ,'t','x');

disp(simplify(answ));

figure(1);

hold on;

a = plot(ax, vpa(subs(answ,x,ax)));

set(a, 'Color', 'red', 'LineWidth', 2);

ay = 0:0.1:0.5;

disp(diff(answ));

y\_vect = vpa(subs(answ,x,ay));

figure(2);

b = plot(y\_vect,vpa(subs(diff(answ),x,ay)));

set(b, 'Color', 'blue', 'LineWidth', 2);

syms x ax y ay yv

y = dsolve('D2y+16\*y = 2\*cos(x)^2','y(0)==0');

y = subs(y,'t','x');

y = subs(y,'C8',1);

disp(y);

ax = -5:0.1:5;

ay = -5:0.1:5;

yv = vpa(subs(y,x,ay));

grid on;

figure(1);

plot(ax,vpa(subs(y,x,ax)));

figure(2);

plot(yv,vpa(subs(diff(y),x,ay)));

figure(3);

plot3(yv,vpa(subs(diff(y),x,ay)),ay);

syms Wobr y11(t) y21(t) y12(t) y22(t) W(t) t tao col1 col2 ax

A = [0 1; -16 0];

W(t) = [y11(t) y12(t);y21(t) y22(t)];

Result = dsolve(diff(W,t) == A\*W(t));

col1 = [(Result.y11); (Result.y21)];

col2 = [(Result.y12); (Result.y22)];

W(t) = [col1 col2];

pretty(W(t));

Wobr(t) = W^(-1);

answer = W(t)\* Wobr(0)\*[1; 0] + W(t)\*int(Wobr(tao)\*[0; 2\*cos(tao)],tao,0,t); %Формула Коши

answer = simplify(answer);

pretty(answer);

y(t)= simplify(answer(1,1));

ydiff(t) =simplify(answer(2,1));

ax = 1:0.1:10;

figure(1);

plot(ax,y(ax));

figure(2);

plot(y(ax),ydiff(ax));

figure(3);

plot3(y(ax),ydiff(ax),ax);