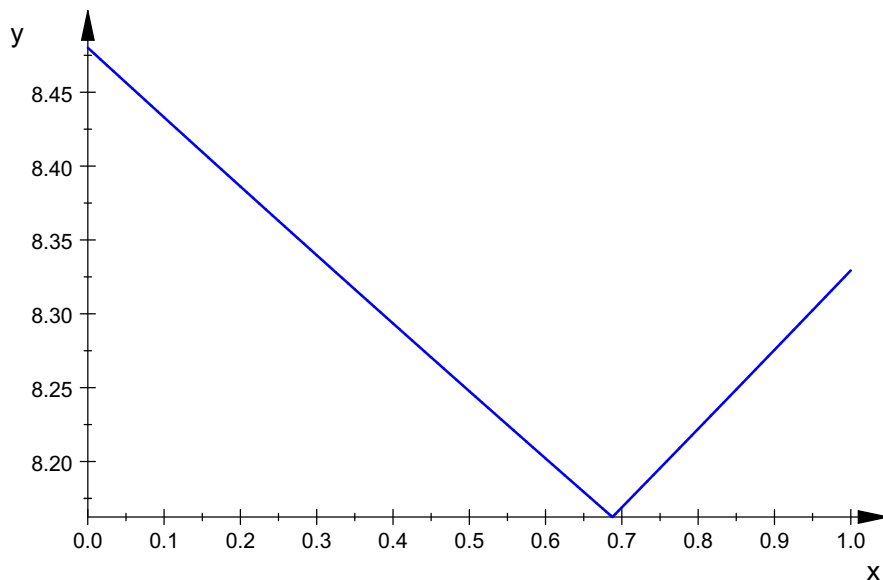


```

[ reset();
[ flag0:= bool(1=1);
[ TRUE
[ flag1:=bool(2*x=-1*exp(x^2)*diff(exp(-x^2),x));
[ TRUE
[ H_p:=1;
[ 1
[ H_c:=2*x;
[ 2x
[ new_flag:=flag1 and flag0:
[ for i from 2 to 3 do
[ H_diff:=(-1)^i*exp(x^2)*diff(exp(-x^2),x $ i):
[ H_n:=2*x*H_c-2*(i-1)*H_p:
[ H_p:=H_c:
[ H_c:=H_n:
[ new_flag:=new_flag and bool(simplify(H_n-H_diff)=0):
[ end_for:
[ new_flag;
[ TRUE
[
[
[
[ M:=x->matrix([[1 , -7, 2], [-7,x,4], [2,4,1]]);
[ x → matrix([[1, -7, 2], [-7, x, 4], [2, 4, 1]])
[ zz:=x->max(abs(linalg::eigenvalues(M(x))))
[ x → max(|linalg::eigenvalues(M(x))|)
[ plot(zz(x),x=0..1)

```



```

[ reset ();
[ f1:=exp(-a*x^2);
[ e^{-ax^2}
[
[ f2:=1/(x+sin(b*x));
[ \frac{1}{x + \sin(bx)}
[
[ s1:=diff(f1,x)|x=1;
[ -2ae^{-a}
[
[ s2:=diff(f2,x)|x=1;
[ -\frac{b \cos(b) + 1}{(\sin(b) + 1)^2}
[
[ ff1:=exp(-a*x^2)|x=1;
[ ff2:=1/(x+sin(b*x))|x=1;
[ equn:={s1=s2 , ff1=ff2};
[
[ e^{-a}
[ \frac{1}{\sin(b) + 1}
[ \left\{ e^{-a} = \frac{1}{\sin(b) + 1}, -2ae^{-a} = -\frac{b \cos(b) + 1}{(\sin(b) + 1)^2} \right\}
[
[ numeric::solve(equn,{a,b})
[ {[a = 0.4727744556, b = 0.6490620712]}
[
[
[

```