```
> #ex 1:
> ec1:=diff(x(t),t)=x(t)+4*y(t)
```

$$ec1 := \frac{d}{dt}\,x(t) = x(t) + 4\,y(t) \tag{1}$$

```
> ec2:=diff(y(t),t)=x(t)+y(t)
```

$$ec2 := \frac{d}{dt}\,y(t) = x(t) + y(t) \tag{2}$$

```
> sist:=ec1,ec2
```

$$sist := \frac{d}{dt}\,x(t) = x(t) + 4\,y(t), \frac{d}{dt}\,y(t) = x(t) + y(t) \tag{3}$$

```
> dsolve({sist},{x(t),y(t)})
```

$$\left\{ x(t) = c_1\,e^{3\,t} + c_2\,e^{-t}, y(t) = \frac{c_1\,e^{3\,t}}{2} - \frac{c_2\,e^{-t}}{2} \right\} \tag{4}$$

```
> restart
> ec1:=diff(x(t),t)=5*x(t)+3*y(t)+1
```

$$ec1 := \frac{d}{dt}\,x(t) = 5\,x(t) + 3\,y(t) + 1 \tag{5}$$

```
> ec2:=diff(y(t),t)=-6*x(t)-4*y(t)+exp(-t)
```

$$ec2 := \frac{d}{dt}\,y(t) = -6\,x(t) - 4\,y(t) + e^{-t} \tag{6}$$

```
> sist2:=ec1,ec2
```

$$sist2 := \frac{d}{dt}\,x(t) = 5\,x(t) + 3\,y(t) + 1, \frac{d}{dt}\,y(t) = -6\,x(t) - 4\,y(t) + e^{-t} \tag{7}$$

```
> dsolve({sist2},{x(t),y(t)})
```

$$\left\{ x(t) = e^{-t}\,c_2 + e^{2\,t}\,c_1 - 2 - t\,e^{-t} - \frac{e^{-t}}{3}, y(t) = -2\,e^{-t}\,c_2 - e^{2\,t}\,c_1 + \frac{e^{-t}}{3} + 2\,t\,e^{-t} + 3 \right\} \tag{8}$$

```
> restart
> ec1:=diff(x(t),t)=2*x(t)-y(t)
```

$$ec1 := \frac{d}{dt}\,x(t) = 2\,x(t) - y(t) \tag{9}$$

```
> ec2:=diff(y(t),t)=x(t)+2*y(t)
```

$$ec2 := \frac{d}{dt}\,y(t) = x(t) + 2\,y(t) \tag{10}$$

```
> sist3:=ec1,ec2
```

$$sist3 := \frac{d}{dt}\,x(t) = 2\,x(t) - y(t), \frac{d}{dt}\,y(t) = x(t) + 2\,y(t) \tag{11}$$

```
> dsolve({sist3},{x(t),y(t)})
```

$$\left\{ x(t) = e^{2\,t}\,(c_2\cos(t) + c_1\sin(t)), y(t) = -e^{2\,t}\,(\cos(t)\,c_1 - \sin(t)\,c_2) \right\} \tag{12}$$

```
> restart
> ec1:=diff(x(t),t)=x(t)+3*y(t)+cos(t)
```

$$ec1 := \frac{d}{dt}\,x(t) = x(t) + 3\,y(t) + \cos(t) \tag{13}$$

```
> ec2:=diff(y(t),t)=x(t)-y(t)+2*t
```

$$ec2 := \frac{d}{dt} y(t) = x(t) - y(t) + 2\,t \tag{14}$$

```
> sist4:=ec1,ec2
```

$$sist4 := \frac{d}{dt} x(t) = x(t) + 3\,y(t) + \cos(t), \frac{d}{dt} y(t) = x(t) - y(t) + 2\,t \tag{15}$$

```
> dsolve({sist4},{x(t),y(t)})
```

$$\left\{ x(t) = -e^{-2\,t} c_2 + 3\,e^{2\,t} c_1 + \frac{\sin(t)}{5} - \frac{\cos(t)}{5} - \frac{3\,t}{2}, y(t) = e^{-2\,t} c_2 + e^{2\,t} c_1 - \frac{\cos(t)}{5} + \frac{t}{2} \right. \tag{16}$$

$$\left. - \frac{1}{2} \right\}$$

```
> restart
> ec1:=diff(x(t),t)=x(t)-y(t)+z(t)
```

$$ec1 := \frac{d}{dt} x(t) = x(t) - y(t) + z(t) \tag{17}$$

```
> ec2:=diff(y(t),t)=x(t)+y(t)-z(t)
```

$$ec2 := \frac{d}{dt} y(t) = x(t) + y(t) - z(t) \tag{18}$$

```
> ec3:=diff(z(t),t)=-y(t)+2*z(t)
```

$$ec3 := \frac{d}{dt} z(t) = -y(t) + 2\,z(t) \tag{19}$$

```
> sist5:=ec1,ec2,ec3
```

$$sist5 := \frac{d}{dt} x(t) = x(t) - y(t) + z(t), \frac{d}{dt} y(t) = x(t) + y(t) - z(t), \frac{d}{dt} z(t) = -y(t) + 2\,z(t) \tag{20}$$

```
> dsolve({sist5},{x(t),y(t),z(t)})
```

$$\left\{ x(t) = c_1\,e^{2\,t} + c_2\,e^t + c_3\,e^t\,t + c_3\,e^t, y(t) = e^t\,(c_3\,t + c_2 - c_3), z(t) = c_1\,e^{2\,t} + c_2\,e^t + c_3\,e^t\,t \right\} \tag{21}$$

```
> restart
> ec1:=diff(x(t),t)=x(t)-2*y(t)-2*z(t)+exp(-t)
```

$$ec1 := \frac{d}{dt} x(t) = x(t) - 2\,y(t) - 2\,z(t) + e^{-t} \tag{22}$$

```
> ec2:=diff(y(t),t)=-2*x(t)+y(t)+2*z(t)
```

$$ec2 := \frac{d}{dt} y(t) = -2\,x(t) + y(t) + 2\,z(t) \tag{23}$$

```
> ec3:=diff(z(t),t)=2*x(t)-y(t)-3*z(t)+exp(-t)
```

$$ec3 := \frac{d}{dt} z(t) = 2\,x(t) - y(t) - 3\,z(t) + e^{-t} \tag{24}$$

```
> sist6:=ec1,ec2,ec3
```

$$sist6 := \frac{d}{dt} x(t) = x(t) - 2\,y(t) - 2\,z(t) + e^{-t}, \frac{d}{dt} y(t) = -2\,x(t) + y(t) + 2\,z(t), \frac{d}{dt} z(t) \tag{25}$$

$$= 2\,x(t) - y(t) - 3\,z(t) + e^{-t}$$

```
> dsolve({sist6},{x(t),y(t),z(t)})
```

$$\tag{26}$$

$$\left\{ x(t) = -c_2\, e^{\sqrt{3}\, t} - c_3\, e^{-\sqrt{3}\, t} + e^{-t}\, c_1 + e^{-t}\, t,\ y(t) = c_2\, e^{\sqrt{3}\, t} + c_3\, e^{-\sqrt{3}\, t},\ z(t) = \frac{c_2\, \sqrt{3}\ e^{\sqrt{3}\, t}}{2} \right. \tag{26}$$

$$\left. -\frac{c_3\, \sqrt{3}\ e^{-\sqrt{3}\, t}}{2} - \frac{3\, c_2\, e^{\sqrt{3}\, t}}{2} - \frac{3\, c_3\, e^{-\sqrt{3}\, t}}{2} + e^{-t}\, c_1 + e^{-t}\, t \right\}$$

```
> #ex2:
> restart
> ec1:=diff(x(t),t)=x(t)+4*y(t)
```

$$ec1 := \frac{d}{dt}\, x(t) = x(t) + 4\, y(t) \tag{27}$$

```
> ec2:=diff(y(t),t)=x(t)+y(t)
```

$$ec2 := \frac{d}{dt}\, y(t) = x(t) + y(t) \tag{28}$$

```
> sist:=ec1,ec2
```

$$sist := \frac{d}{dt}\, x(t) = x(t) + 4\, y(t),\ \frac{d}{dt}\, y(t) = x(t) + y(t) \tag{29}$$

```
> cond_in:=x(0)=1,y(0)=2
```

$$cond\_in := x(0) = 1,\ y(0) = 2 \tag{30}$$

```
> sol:=dsolve({sist,cond_in},{x(t),y(t)})
```

$$sol := \left\{ x(t) = -\frac{3\, e^{-t}}{2} + \frac{5\, e^{3\, t}}{2},\ y(t) = \frac{3\, e^{-t}}{4} + \frac{5\, e^{3\, t}}{4} \right\} \tag{31}$$
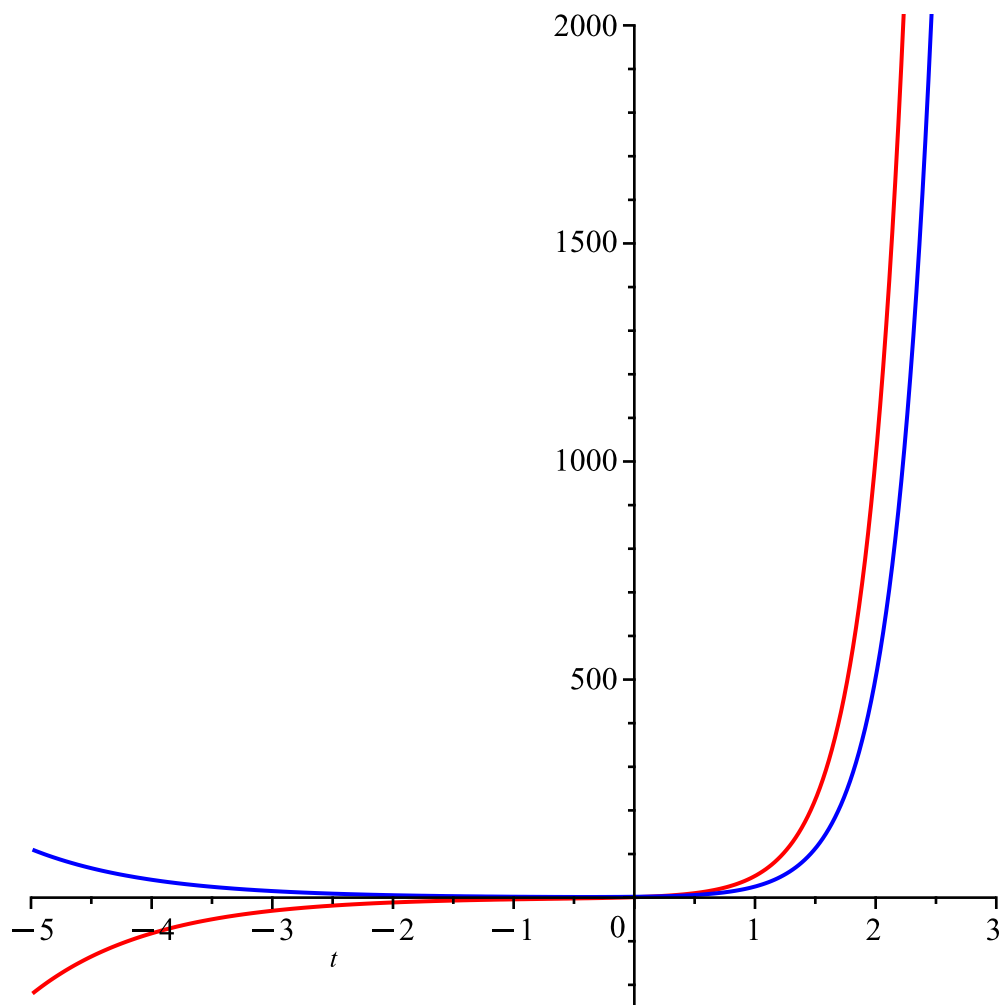
```
> with(plots):
> xx:=unapply(rhs(sol[1]),t);
```

$$xx := t \mapsto -\frac{3\cdot e^{-t}}{2} + \frac{5\cdot e^{3\cdot t}}{2} \tag{32}$$

```
> yy:=unapply(rhs(sol[2]),t);
```

$$yy := t \mapsto \frac{3\cdot e^{-t}}{4} + \frac{5\cdot e^{3\cdot t}}{4} \tag{33}$$

```
> plot([xx(t),yy(t)],t=-5..5,color=[red,blue])
```

```
> ec3:=diff(x(t),t)=x(t)-y(t)+t-1
```

$$ec3 := \frac{d}{dt}\, x(t) = x(t) - y(t) + t - 1 \tag{34}$$

```
> ec4:=diff(y(t),t)=-2*x(t)+4*y(t)+cos(t)
```

$$ec4 := \frac{d}{dt}\, y(t) = -2\, x(t) + 4\, y(t) + \cos(t) \tag{35}$$

```
> sist2:=ec1,ec2
```

$$sist2 := \frac{d}{dt}\, x(t) = x(t) + 4\, y(t),\ \frac{d}{dt}\, y(t) = x(t) + y(t) \tag{36}$$

```
> cond_in2:=x(0)=0, y(0)=1
```

$$cond\_in2 := x(0) = 0,\ y(0) = 1 \tag{37}$$
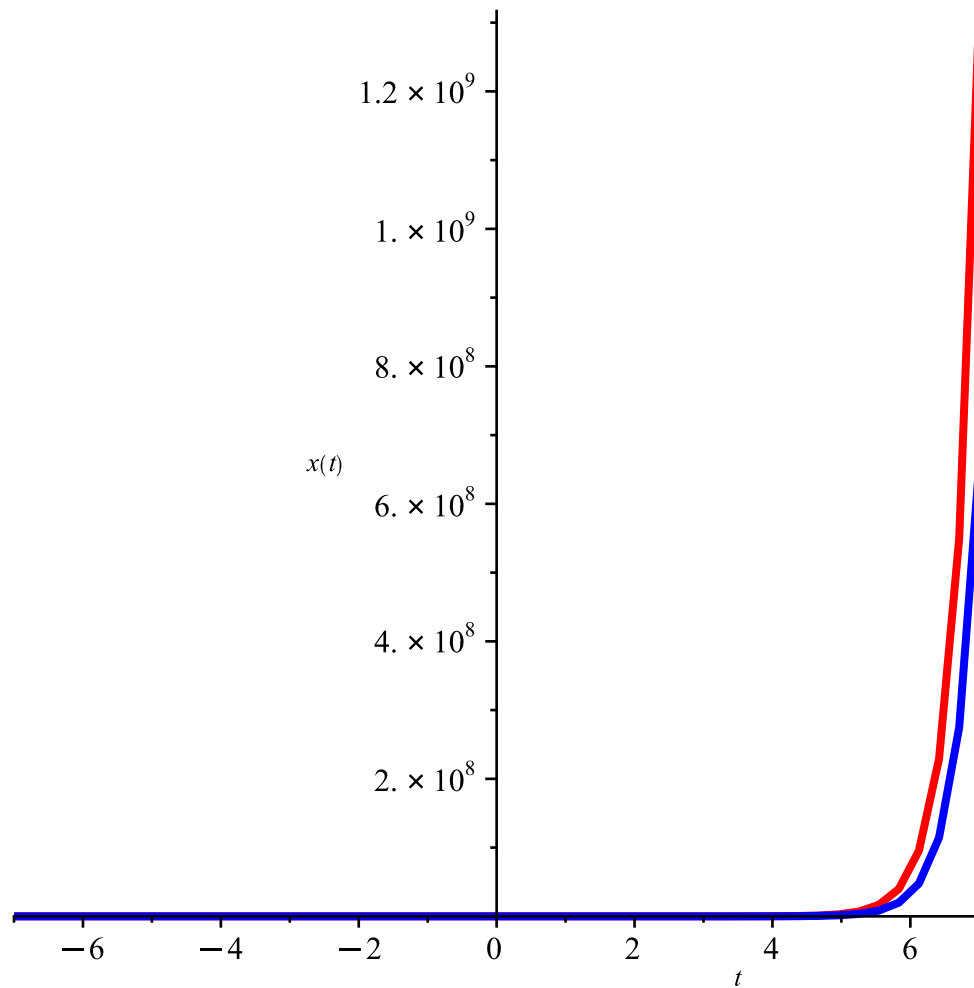
```
> sol2:=dsolve({sist2,cond_in2},{x(t),y(t)})
```

$$sol2 := \left\{ x(t) = -e^{-t} + e^{3t},\ y(t) = \frac{e^{-t}}{2} + \frac{e^{3t}}{2} \right\} \tag{38}$$

```
> with(DEtools):
> xx2:=DEplot([sist2],[x,y],t=-7..7,[[cond_in2]], linecolor=red,
  scene=[t,x(t)]):
> yy2:=DEplot([sist2],[x,y],t=-7..7,[[cond_in2]], linecolor=blue,
  scene=[t,y(t)]):
> display([xx2,yy2])
```

> `ec5:=diff(x(t),t)=x(t)+2*y(t)+exp(-t)`

$$ec5 := \frac{d}{dt} x(t) = x(t) + 2\,y(t) + e^{-t} \tag{39}$$

> `ec6:=diff(y(t),t)=-2*x(t)+y(t)+1`

$$ec6 := \frac{d}{dt} y(t) = -2\,x(t) + y(t) + 1 \tag{40}$$

> `sist3:=ec1,ec2`

$$sist3 := \frac{d}{dt} x(t) = x(t) + 4\,y(t),\ \frac{d}{dt} y(t) = x(t) + y(t) \tag{41}$$

> `cond_in3:=x(0), y(0)=1`

$$cond\_in3 := x(0),\, y(0) = 1 \tag{42}$$

> `sol3:=dsolve({sist3,cond_in3},{x(t),y(t)})`

$$sol3 := \left\{ x(t) = -e^{-t} + e^{3\,t},\, y(t) = \frac{e^{-t}}{2} + \frac{e^{3\,t}}{2} \right\} \tag{43}$$
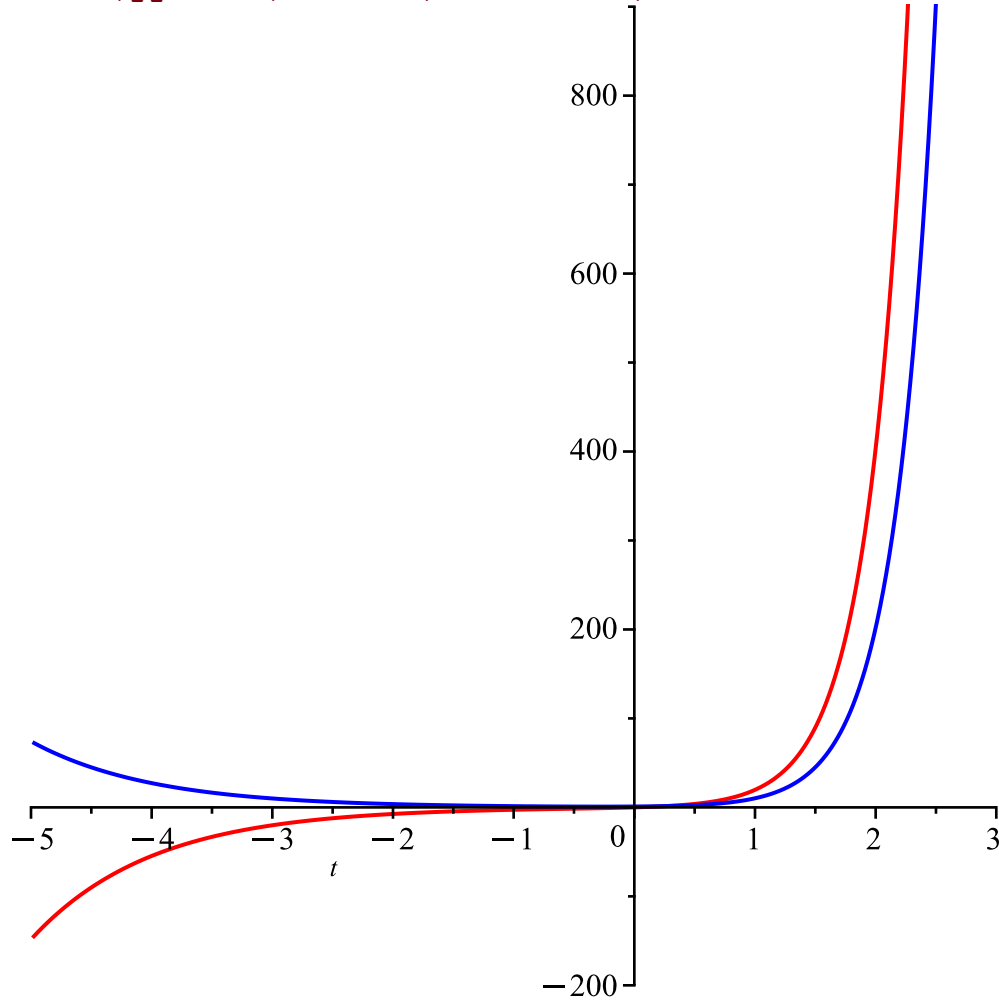
> `xx3:=unapply(rhs(sol3[1]),t)`

$$xx3 := t \mapsto -e^{-t} + e^{3 \cdot t} \tag{44}$$

> `yy3:=unapply(rhs(sol3[2]),t)`

$$yy3 := t \mapsto \frac{e^{-t}}{2} + \frac{e^{3 \cdot t}}{2} \tag{45}$$

```
> plot([xx3(t),yy3(t)],t=-5..5,color=[red,blue])
```



```
> ec7:=diff(x(t),t)=-x(t)+3*y(t)+3*z(t)+27*t^2
```

$$ec7 := \frac{d}{dt}\, x(t) = -x(t) + 3\,y(t) + 3\,z(t) + 27\,t^2 \tag{46}$$

```
> ec8:=diff(y(t),t)=2*x(t)-2*y(t)-5*z(t)+3*t
```

$$ec8 := \frac{d}{dt}\, y(t) = 2\,x(t) - 2\,y(t) - 5\,z(t) + 3\,t \tag{47}$$

```
> ec9:=diff(z(t),t)=-2*x(t)+3*y(t)+6*z(t)+3
```

$$ec9 := \frac{d}{dt}\, z(t) = -2\,x(t) + 3\,y(t) + 6\,z(t) + 3 \tag{48}$$

```
> sist4:=ec7,ec8,ec9
```

$$sist4 := \frac{d}{dt}\, x(t) = -x(t) + 3\,y(t) + 3\,z(t) + 27\,t^2,\ \frac{d}{dt}\, y(t) = 2\,x(t) - 2\,y(t) - 5\,z(t) + 3\,t, \tag{49}$$

$$\frac{d}{dt}\, z(t) = -2\,x(t) + 3\,y(t) + 6\,z(t) + 3$$

```
> cond_in4:=x(0)=50, y(0)=-30, z(0)=26
```

$$cond\_in4 := x(0) = 50, y(0) = -30, z(0) = 26 \tag{50}$$

```
> sol4:=dsolve({sist4,cond_in4},{x(t),y(t),z(t)})
```

$$sol4 := \{x(t) = 3\,e^t + 2\,e^{-t} + 27\,t^2 - 63\,t + 45, y(t) = e^{3t} + 2\,e^t - 18\,t^2 + 24\,t - 32 - e^{-t}, z(t) \tag{51}$$

$$= -e^{3t} - 27\,t + 18\,t^2 + 26 + e^{-t}\}$$

```
> xx4:=unapply(rhs(sol4[1]),t)
```
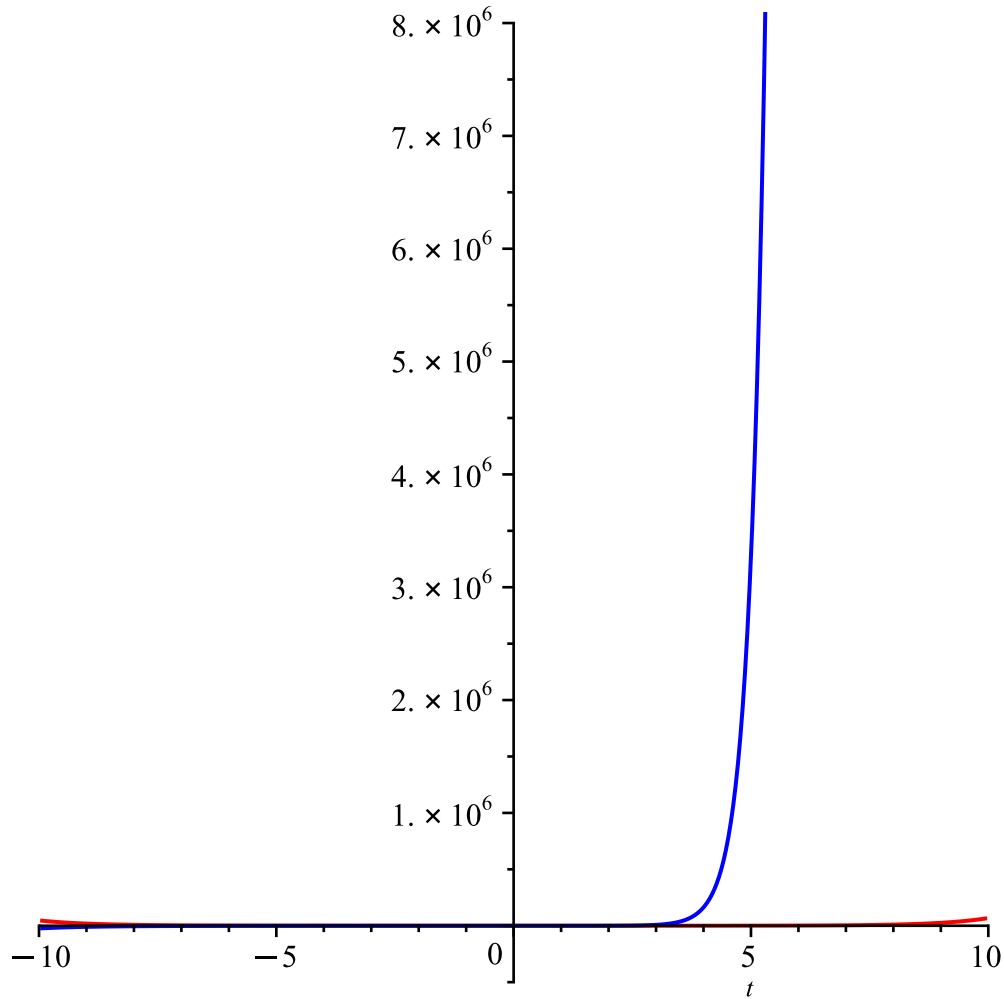$$xx4 := t \mapsto 3 \cdot e^t + 2 \cdot e^{-t} + 27 \cdot t^2 - 63 \cdot t + 45 \tag{52}$$

```
> yy4:=unapply(rhs(sol4[2]),t)
```
$$yy4 := t \mapsto e^{3 \cdot t} + 2 \cdot e^t - 18 \cdot t^2 + 24 \cdot t - 32 - e^{-t} \tag{53}$$

```
> plot([xx4(t),yy4(t)],t=-10..10,color=[red,blue])
```



```
> #ex3:
> restart
> with(DEtools): with(plots):
> ec1:=diff(x(t),t)=x(t)+y(t)
```
$$ec1 := \frac{d}{dt}\,x(t) = x(t) + y(t) \tag{54}$$

```
> ec2:=diff(y(t),t)=-2*x(t)+4*y(t)
```
$$ec2 := \frac{d}{dt}\,y(t) = -2\,x(t) + 4\,y(t) \tag{55}$$

```
> sist:=ec1,ec2
```
$$sist := \frac{d}{dt}\,x(t) = x(t) + y(t),\ \frac{d}{dt}\,y(t) = -2\,x(t) + 4\,y(t) \tag{56}$$

```
> cond_in1:=x(0)=3, y(0)=0
```
$$\tag{57}$$

$$cond\_in1 := x(0) = 3, y(0) = 0 \tag{57}$$

```
> cond_in2:=x(0)=0, y(0)=3
```
$$cond\_in2 := x(0) = 0, y(0) = 3 \tag{58}$$

```
> cond_in3:=x(0)=-3, y(0)=0
```
$$cond\_in3 := x(0) = -3, y(0) = 0 \tag{59}$$

```
> cond_in4:=x(0)=0, y(0)=-3
```
$$cond\_in4 := x(0) = 0, y(0) = -3 \tag{60}$$

```
> sol1:=dsolve({sist,cond_in1},{x(t),y(t)})
```
$$sol1 := \{x(t) = 6\,e^{2\,t} - 3\,e^{3\,t}, y(t) = 6\,e^{2\,t} - 6\,e^{3\,t}\} \tag{61}$$

```
> limit(sol1[1],t=infinity)
```
$$\lim_{t \to \infty} x(t) = -\infty \tag{62}$$

```
> limit(sol1[2],t=infinity)
```
$$\lim_{t \to \infty} y(t) = -\infty \tag{63}$$

```
> sol2:=dsolve({sist,cond_in2},{x(t),y(t)})
```
$$sol2 := \{x(t) = -3\,e^{2\,t} + 3\,e^{3\,t}, y(t) = -3\,e^{2\,t} + 6\,e^{3\,t}\} \tag{64}$$

```
> limit(sol2[1],t=infinity)
```
$$\lim_{t \to \infty} x(t) = \infty \tag{65}$$

```
> limit(sol2[2],t=infinity)
```
$$\lim_{t \to \infty} y(t) = \infty \tag{66}$$

```
> sol3:=dsolve({sist,cond_in3},{x(t),y(t)})
```
$$sol3 := \{x(t) = -6\,e^{2\,t} + 3\,e^{3\,t}, y(t) = -6\,e^{2\,t} + 6\,e^{3\,t}\} \tag{67}$$

```
> limit(sol3[1],t=infinity)
```
$$\lim_{t \to \infty} x(t) = \infty \tag{68}$$

```
> limit(sol3[2],t=infinity)
```
$$\lim_{t \to \infty} y(t) = \infty \tag{69}$$

```
> sol4:=dsolve({sist,cond_in4},{x(t),y(t)})
```
$$sol4 := \{x(t) = 3\,e^{2\,t} - 3\,e^{3\,t}, y(t) = 3\,e^{2\,t} - 6\,e^{3\,t}\} \tag{70}$$

```
> limit(sol4[1],t=infinity)
```
$$\lim_{t \to \infty} x(t) = -\infty \tag{71}$$

```
> limit(sol4[2],t=infinity)
```
$$\lim_{t \to \infty} y(t) = -\infty \tag{72}$$

```
> cond_in:=[x(0)=3, y(0)=0],[x(0)=0, y(0)=3],[x(0)=-3, y(0)=0],[x
  (0)=0, y(0)=-3]
```
$$cond\_in := [x(0) = 3, y(0) = 0], [x(0) = 0, y(0) = 3], [x(0) = -3, y(0) = 0], [x(0) = 0, y(0) \tag{73}$$
$$= -3]$$

```
> DEplot([sist],[x(t),y(t)],t=-5..5,x=-10..10,y=-10..10,[cond_in],
  arrows=medium, linecolor=blue, stepsize=0.1)
```
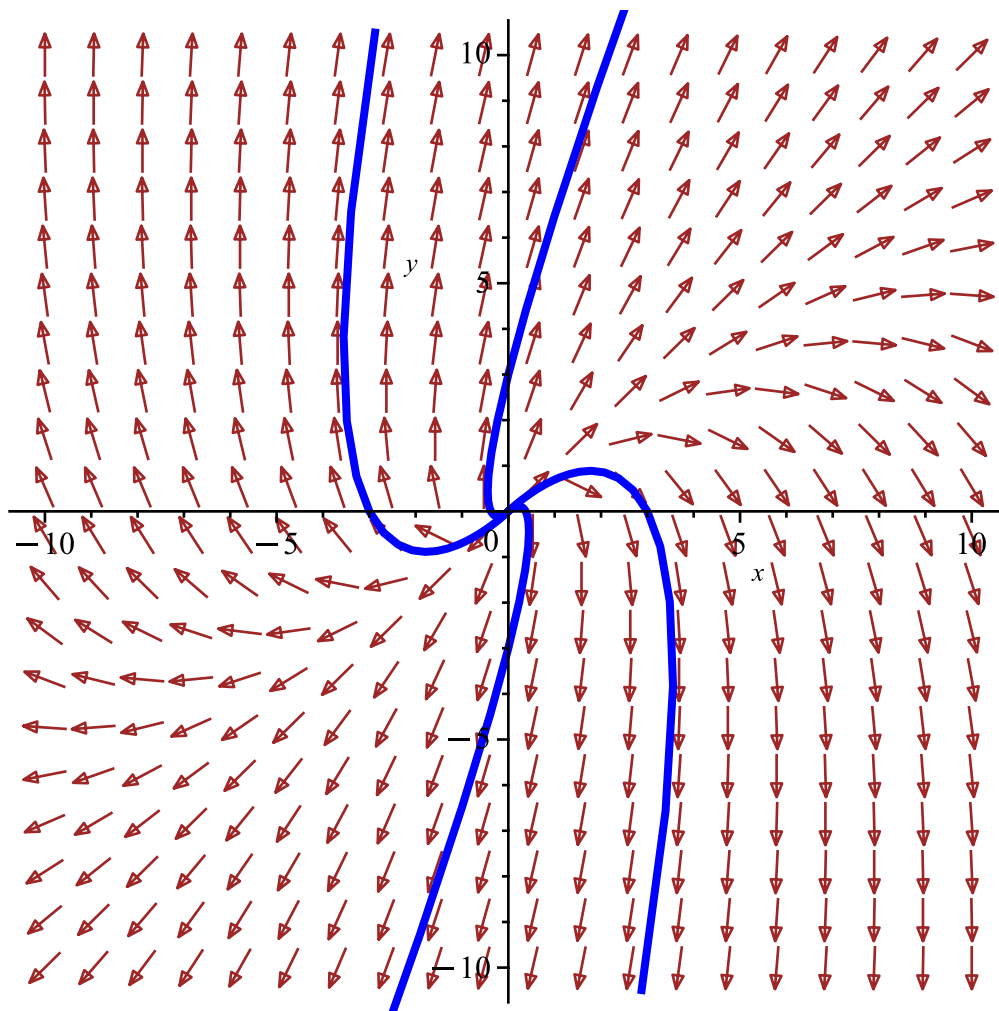
```
> #ex4:
> restart
> with(DEtools): with(plots):
> ec1:=diff(x(t),t)=y(t)
```
$$ec1 := \frac{\mathrm{d}}{\mathrm{d}t}\, x(t) = y(t) \tag{74}$$

```
> ec2:=diff(y(t),t)=-x(t)-2*y(t)
```
$$ec2 := \frac{\mathrm{d}}{\mathrm{d}t}\, y(t) = -x(t) - 2\,y(t) \tag{75}$$

```
> sist:=ec1,ec2
```
$$sist := \frac{\mathrm{d}}{\mathrm{d}t}\, x(t) = y(t),\ \frac{\mathrm{d}}{\mathrm{d}t}\, y(t) = -x(t) - 2\,y(t) \tag{76}$$

```
> sol:=dsolve({sist},{x(t),y(t)})
```
$$sol := \left\{ x(t) = \mathrm{e}^{-t}\left(c_2\,t + c_1 \right),\ y(t) = -\mathrm{e}^{-t}\left(c_2\,t + c_1 - c_2 \right) \right\} \tag{77}$$

```
> limit(sol[1],t=infinity)
```
$$\lim_{t \to \infty} x(t) = 0 \tag{78}$$
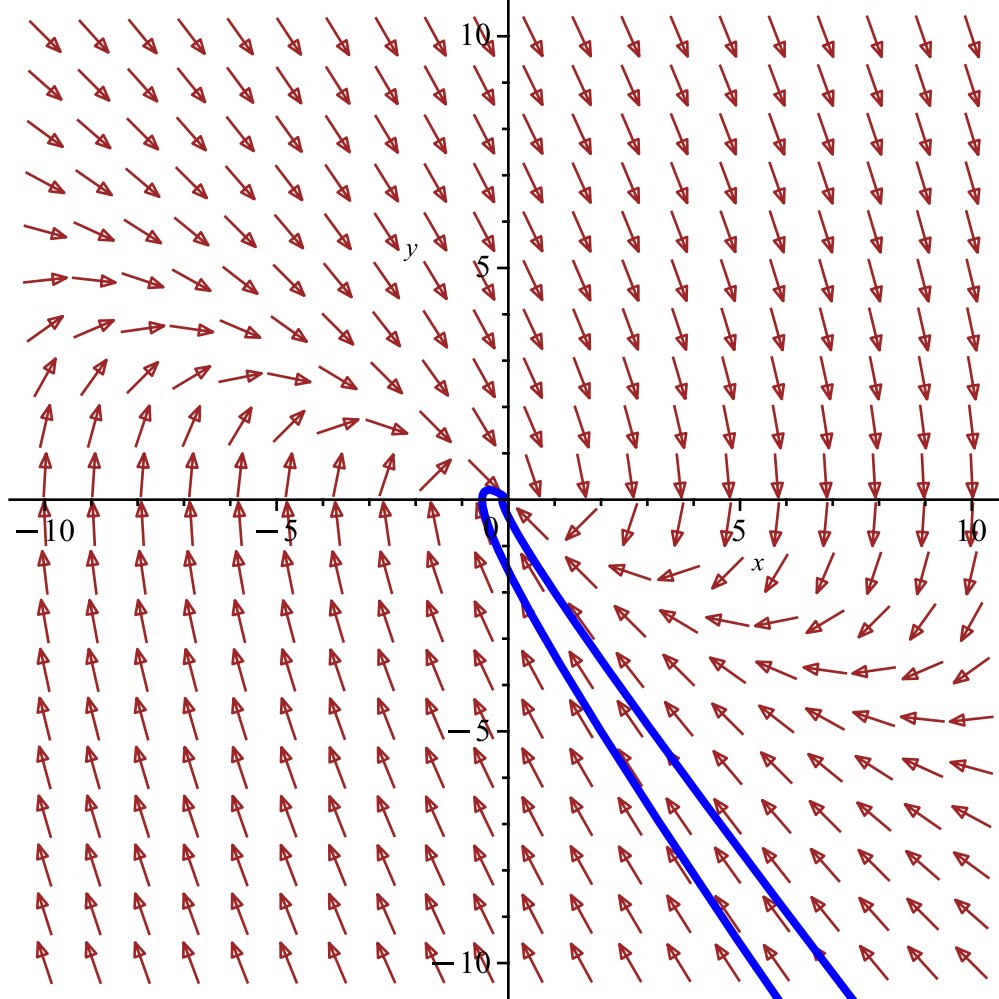
```
> limit(sol[2],t=infinity)
```
$$\lim_{t \to \infty} y(t) = 0 \tag{79}$$

```
> DEplot([sist],[x(t),y(t)],t=-5..5,x=-10..10,y=-10..10,[[x(0)=1,y
  (0)=-2],[x(0)=2,y(0)=-5]],arrows=medium, linecolor=blue)
```



```
> #ex5:
> restart
> with(DEtools): with(plots):
> ec1:=diff(x(t),t)=2*x(t)+y(t)
```

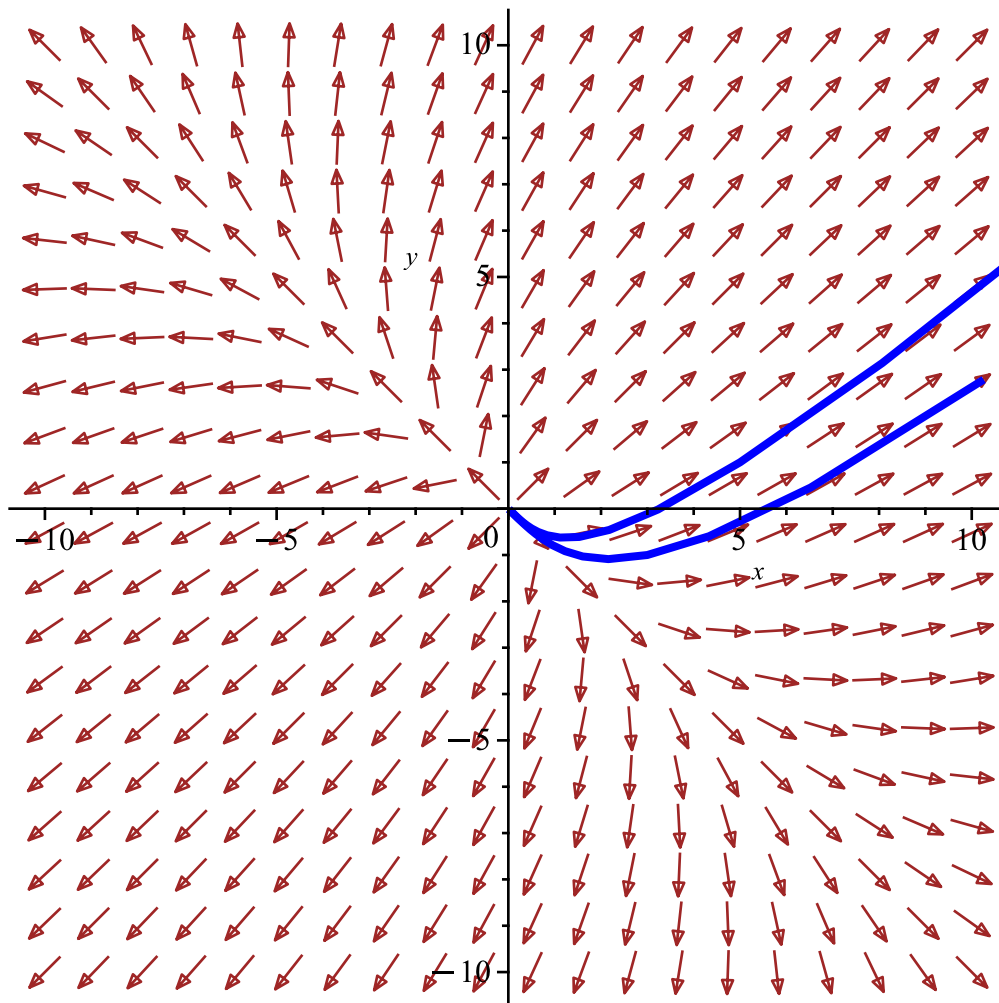$$ec1 := \frac{d}{dt}\, x(t) = 2\, x(t) + y(t) \tag{80}$$

```
> ec2:=diff(y(t),t)=x(t)+2*y(t)
```

$$ec2 := \frac{d}{dt}\, y(t) = x(t) + 2\, y(t) \tag{81}$$

```
> sist:=ec1,ec2
```

$$sist := \frac{d}{dt}\, x(t) = 2\, x(t) + y(t),\ \frac{d}{dt}\, y(t) = x(t) + 2\, y(t) \tag{82}$$

```
> DEplot([sist],[x(t),y(t)],t=-5..5,x=-10..10,y=-10..10,[[x(0)=5,y
  (0)=1],[x(0)=3,y(0)=-1]],arrows=medium,linecolor=blue)
```

```
> ec3:=diff(x(t),t)=-x(t)-y(t)
```
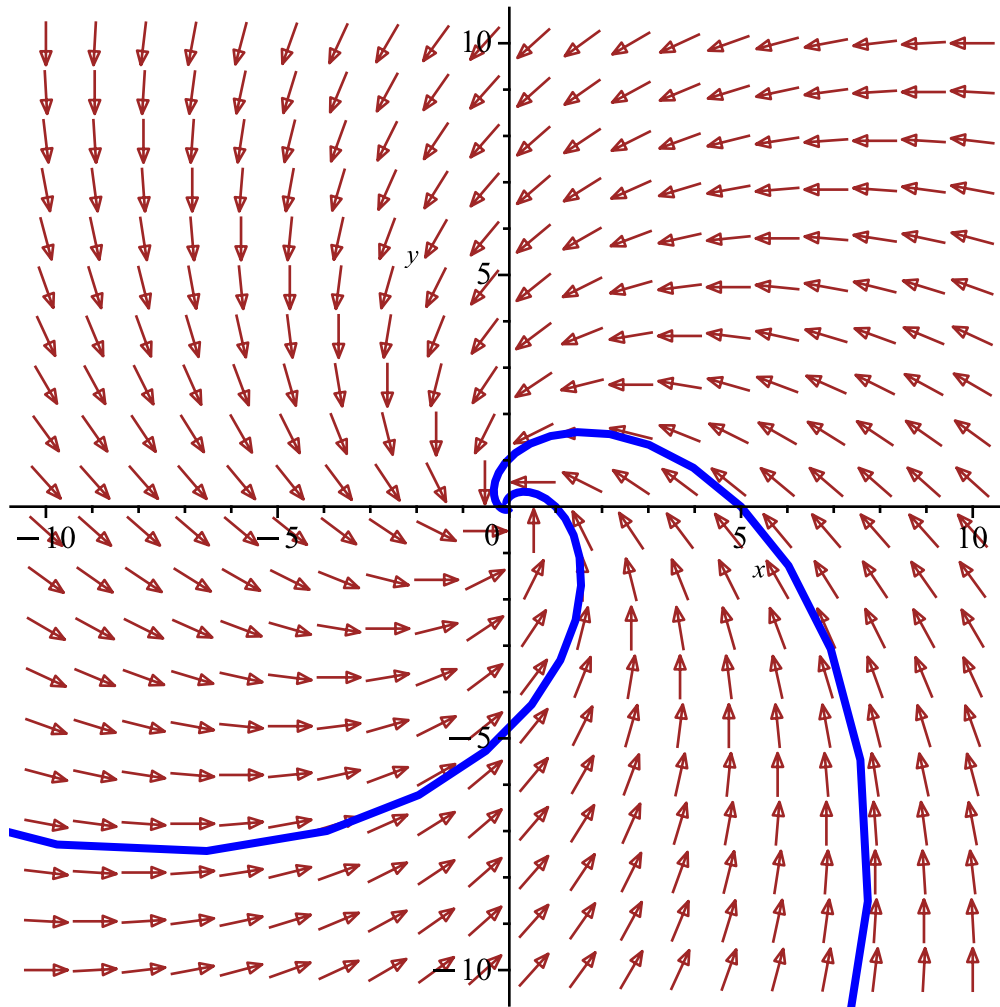
$$ec3 := \frac{d}{dt}\,x(t) = -x(t) - y(t) \tag{83}$$

```
> ec4:=diff(y(t),t)=x(t)-y(t)
```

$$ec4 := \frac{d}{dt}\,y(t) = x(t) - y(t) \tag{84}$$

```
> sist2:=ec3,ec4
```

$$sist2 := \frac{d}{dt}\,x(t) = -x(t) - y(t),\ \frac{d}{dt}\,y(t) = x(t) - y(t) \tag{85}$$

```
> DEplot([sist2],[x(t),y(t)],t=-5..5,x=-10..10,y=-10..10,[[x(0)=1,y
  (0)=0],[x(0)=5,y(0)=0]],arrows=medium,linecolor=blue)
```

```
> #limitele la infinit sunt 0
```
$$sol := \left\{ x(t) = e^{-t}\left(c_2 \cos(t) + c_1 \sin(t) \right), y(t) = -e^{-t}\left(\cos(t)\, c_1 - \sin(t)\, c_2 \right) \right\} \tag{86}$$

```
> ec5:=diff(x(t),t)=y(t)
```
$$ec5 := \frac{\mathrm{d}}{\mathrm{d}t}\, x(t) = y(t) \tag{87}$$

```
> ec6:=diff(y(t),t)=-x(t)
```
$$ec6 := \frac{\mathrm{d}}{\mathrm{d}t}\, y(t) = -x(t) \tag{88}$$

```
> sist3:=ec5,ec6
```
$$sist3 := \frac{\mathrm{d}}{\mathrm{d}t}\, x(t) = y(t),\ \frac{\mathrm{d}}{\mathrm{d}t}\, y(t) = -x(t) \tag{89}$$

```
> DEplot([sist3],[x(t),y(t)],t=-15..15,x=-50..50,y=-50..50,[[x(0)=
  9,y(0)=5],[x(0)=4,y(0)=0]],arrows=medium,linecolor=blue)
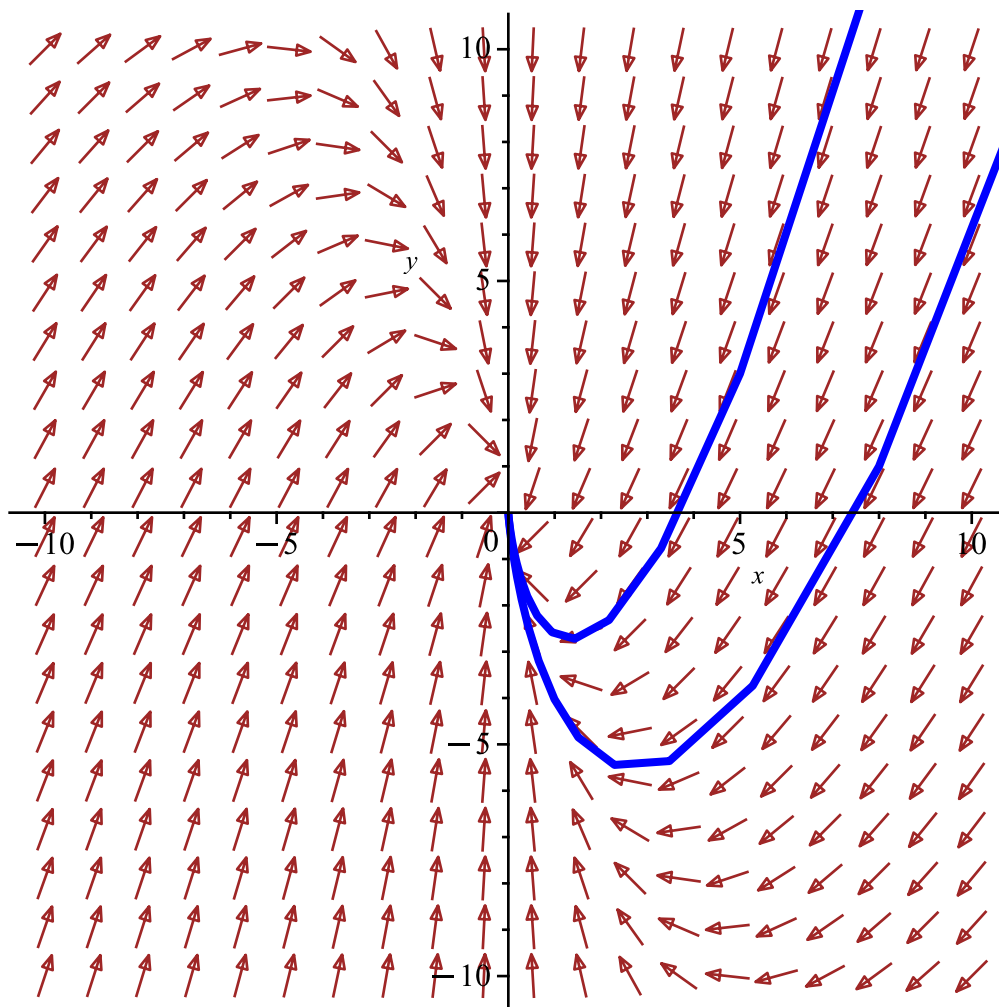```
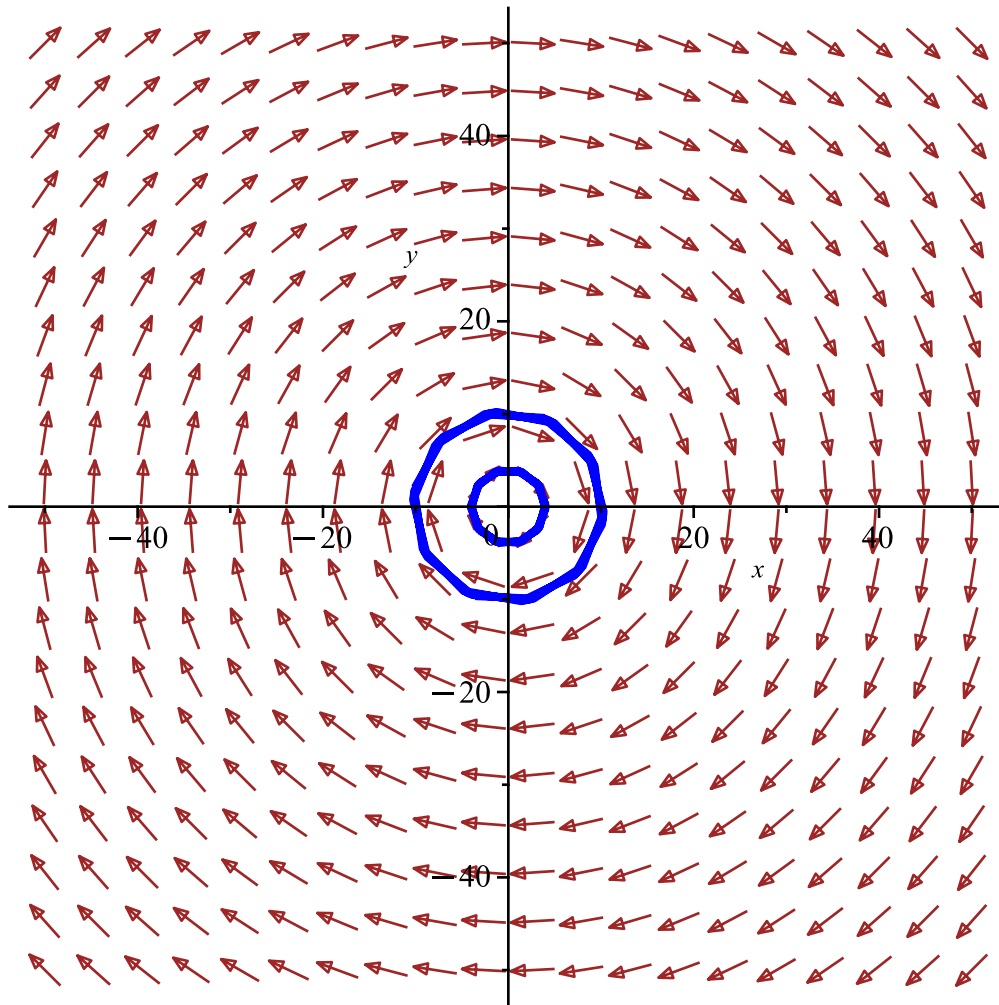
```
> ec7:=diff(x(t),t)=-2*x(t)
```

$$ec7 := \frac{\mathrm{d}}{\mathrm{d}t}\, x(t) = -2\, x(t) \qquad\qquad (90)$$

```
> ec8:=diff(y(t),t)=-4*x(t)-2*y(t)
```

$$ec8 := \frac{\mathrm{d}}{\mathrm{d}t}\, y(t) = -4\, x(t) - 2\, y(t) \qquad\qquad (91)$$

```
> sist4:=ec7,ec8
```

$$sist4 := \frac{\mathrm{d}}{\mathrm{d}t}\, x(t) = -2\, x(t),\ \frac{\mathrm{d}}{\mathrm{d}t}\, y(t) = -4\, x(t) - 2\, y(t) \qquad\qquad (92)$$

```
> DEplot([sist4],[x(t),y(t)],t=-5..5,x=-10..10,y=-10..10,[[x(0)=8,y
  (0)=1],[x(0)=5,y(0)=3]],arrows=medium,linecolor=blue)
```

> #limitele la infinit sunt 0
> ec9:=diff(x(t),t)=x(t)-4*y(t)

$$ec9 := \frac{\mathrm{d}}{\mathrm{d}t}\, x(t) = x(t) - 4\, y(t) \qquad\qquad \textbf{(93)}$$

> ec10:=diff(y(t),t)=5*x(t)-3*y(t)

$$ec10 := \frac{\mathrm{d}}{\mathrm{d}t}\, y(t) = 5\, x(t) - 3\, y(t) \qquad\qquad \textbf{(94)}$$

> sist5:=ec9,ec10

$$sist5 := \frac{\mathrm{d}}{\mathrm{d}t}\, x(t) = x(t) - 4\, y(t),\ \frac{\mathrm{d}}{\mathrm{d}t}\, y(t) = 5\, x(t) - 3\, y(t) \qquad\qquad \textbf{(95)}$$

> DEplot([sist5],[x(t),y(t)],t=-5..5,x=-10..10,y=-10..10,[[x(0)=6,y
  (0)=5],[x(0)=3,y(0)=4]],arrows=medium,linecolor=blue)
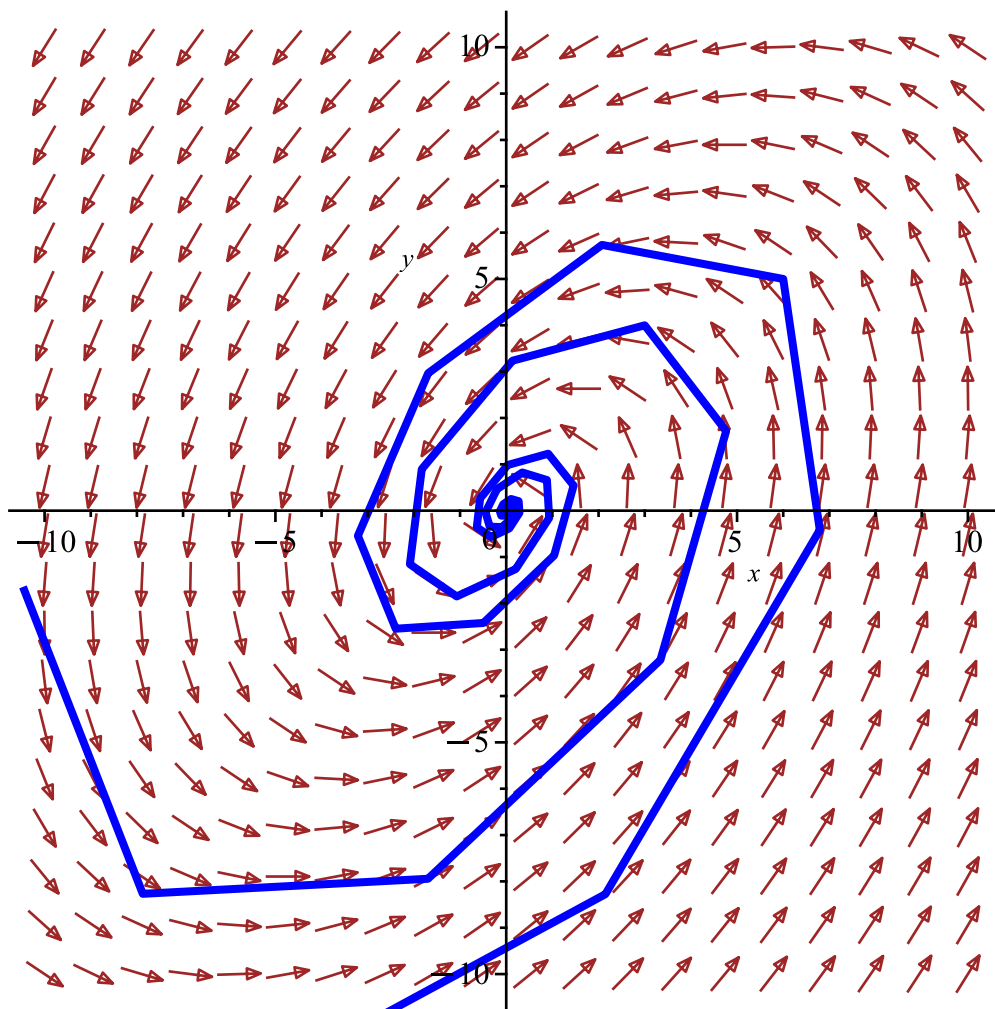
```
> #limitele la infinit sunt 0
  ec11:=diff(x(t),t)=3*x(t)-y(t)
```

$$ec11 := \frac{\mathrm{d}}{\mathrm{d}t}\, x(t) = 3\, x(t) - y(t) \tag{96}$$

```
> ec12:=diff(y(t),t)=y(t)
```

$$ec12 := \frac{\mathrm{d}}{\mathrm{d}t}\, y(t) = y(t) \tag{97}$$

```
> sist6:=ec11,ec12
```

$$sist6 := \frac{\mathrm{d}}{\mathrm{d}t}\, x(t) = 3\, x(t) - y(t), \; \frac{\mathrm{d}}{\mathrm{d}t}\, y(t) = y(t) \tag{98}$$

```
> DEplot([sist6],[x(t),y(t)],t=-5..5,x=-10..10,y=-10..10,[[x(0)=3,y
  (0)=5],[x(0)=8,y(0)=4]],arrows=medium,linecolor=blue)
```