```
> dsolve( D(x)(t) = 3*x(t));
```

$$x(t) = \_C1\, e^{3t} \tag{1}$$

```
> dsolve( {D(x)(t) = 3*x(t), x(0)=7});
```

$$x(t) = 7\, e^{3t} \tag{2}$$

```
> dsolve( D(x)(t) = 3*x(t) + cos(t));
```

$$x(t) = -\frac{3}{10}\cos(t) + \frac{1}{10}\sin(t) + \_C1\, e^{3t} \tag{3}$$

```
> dsolve( {D(x)(t) = 3*x(t)+cos(t), x(0)=7});
```

$$x(t) = -\frac{3}{10}\cos(t) + \frac{1}{10}\sin(t) + \frac{73}{10}\, e^{3t} \tag{4}$$

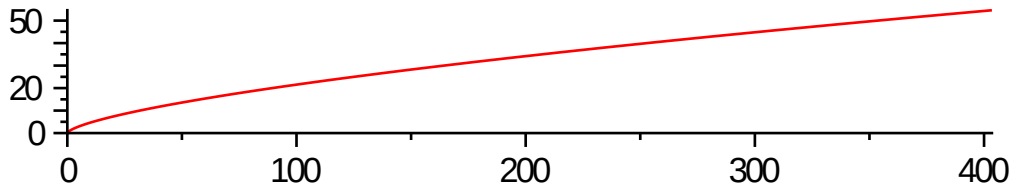
```
> with(DEtools):

> dsolve( {D(x)(t) = 3*x(t), D(y)(t)=2*y(t)});
```

$$\{x(t) = \_C2\, e^{3t}, y(t) = \_C1\, e^{2t}\} \tag{5}$$

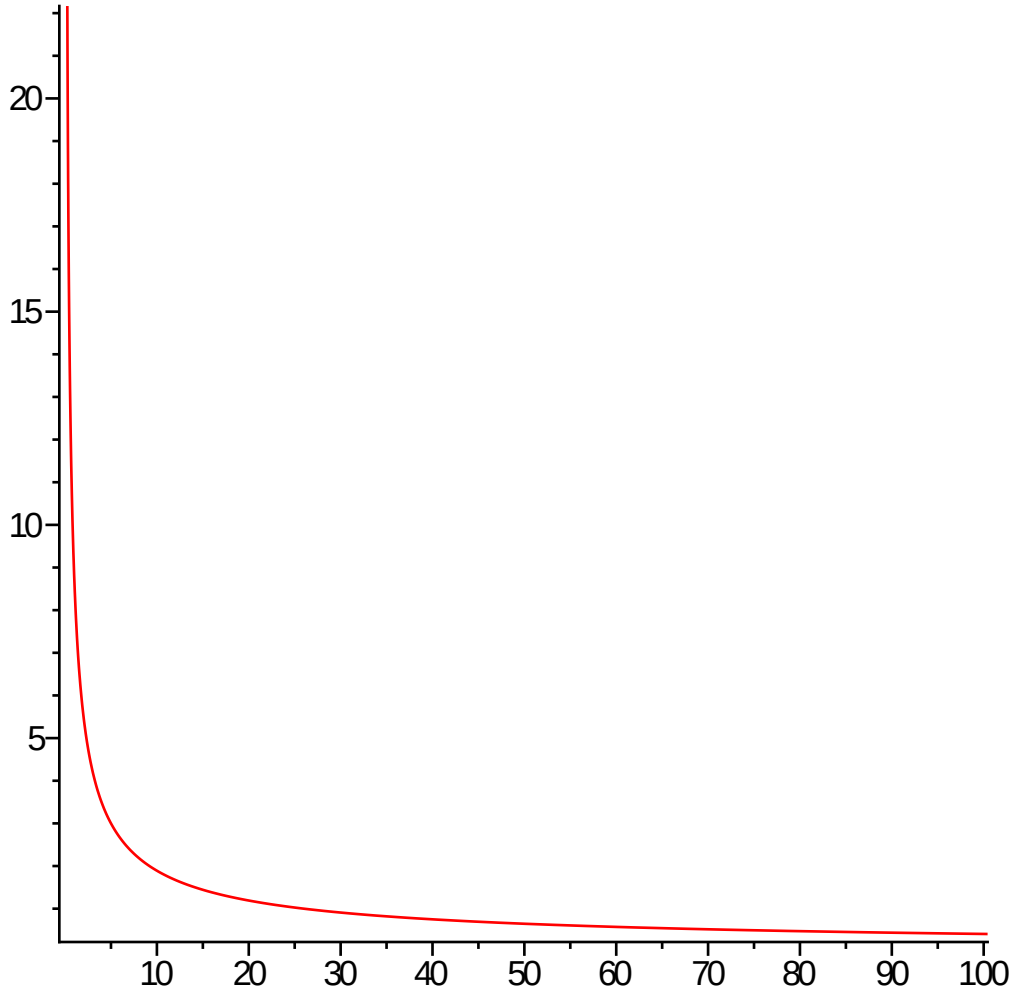
```
> dsolve( {D(x)(t) = 3*x(t), D(y)(t)=2*y(t), x(0)=1, y(0)=1});
```

$$\{x(t) = e^{3t}, y(t) = e^{2t}\} \tag{6}$$

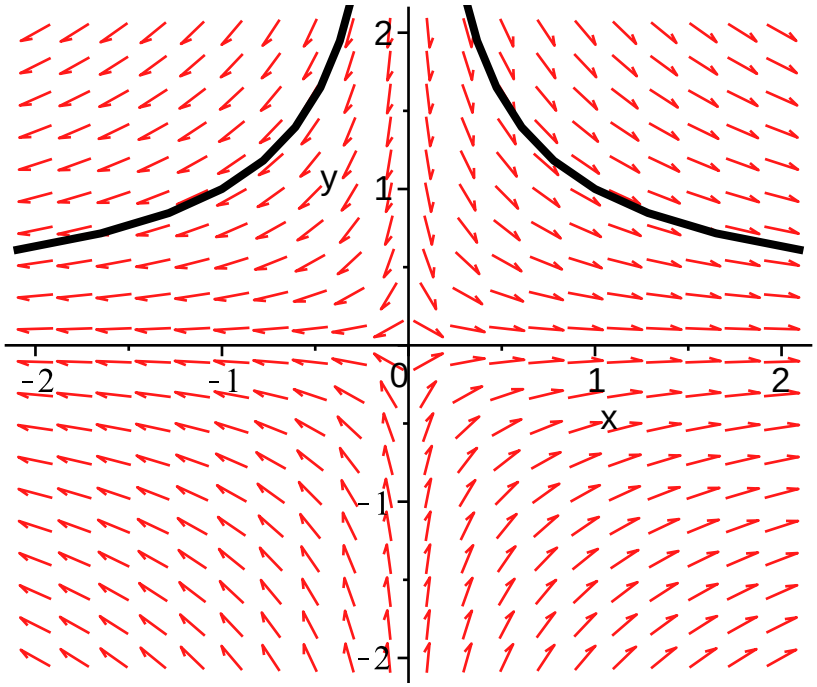
```
> plot( [exp(3*t), exp(2*t), t=-4..2], scaling=constrained);
```



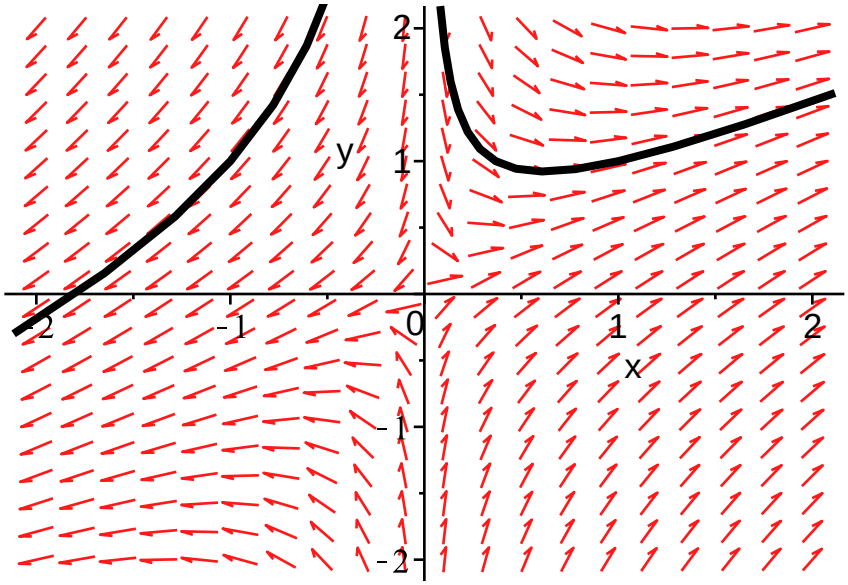

```
> plot( [5*exp(3*t), 3*exp(-2*t), t=-1..1]);
```



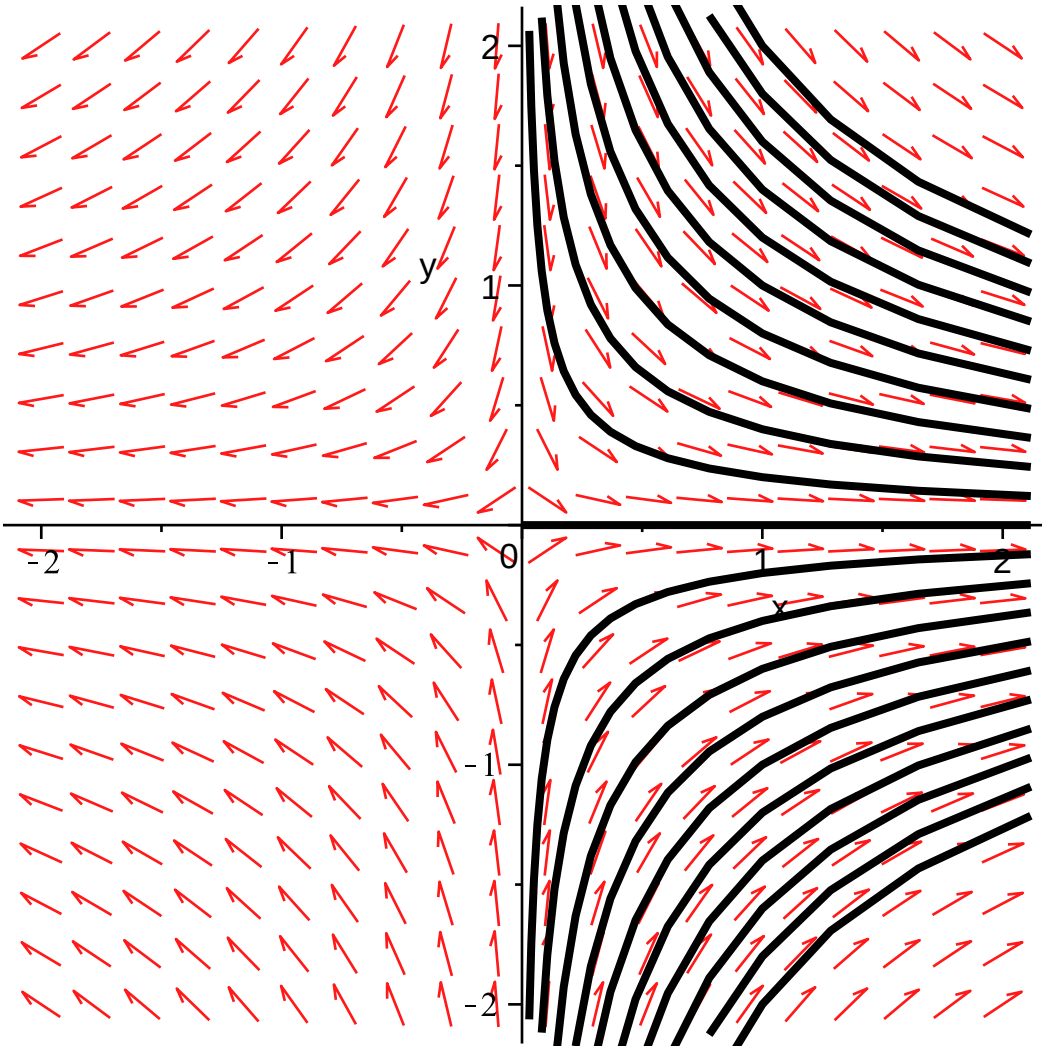

```
> DEplot( [diff(x(t),t) = 3*x(t), diff(y(t),t)= -2*y(t)],
    [x(t), y(t)], t=-2..2, x=-2..2, y=-2..2,
    [[x(0)=1, y(0)=1], [x(0)=-1, y(0)=1]], linecolor=black);
```



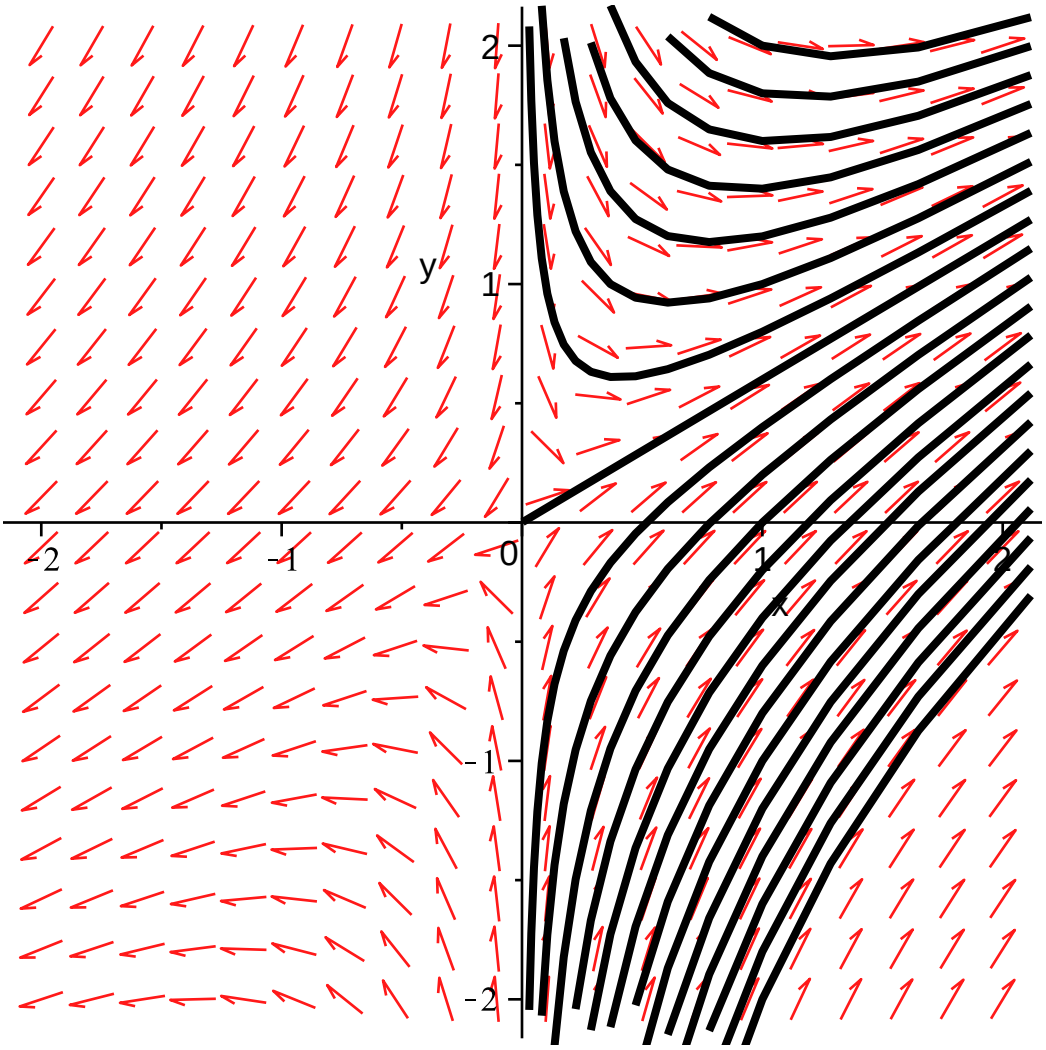

```
> DEplot( [diff(x(t),t) = 3*x(t), diff(y(t),t)= -2*y(t)+ 3*x(t)],
    [x(t), y(t)], t=-2..2, x=-2..2, y=-2..2,
    [[x(0)=1, y(0)=1],[x(0)=-1, y(0)=1]], linecolor=black);
```




```
> DEplot( [diff(x(t),t) = 3*x(t), diff(y(t),t)= -2*y(t)],
    [x(t), y(t)], t=-2..2, x=-2..2, y=-2..2,
    [seq([x(0)=1, y(0)=k], k=-2..2, .2)], linecolor=black);
```



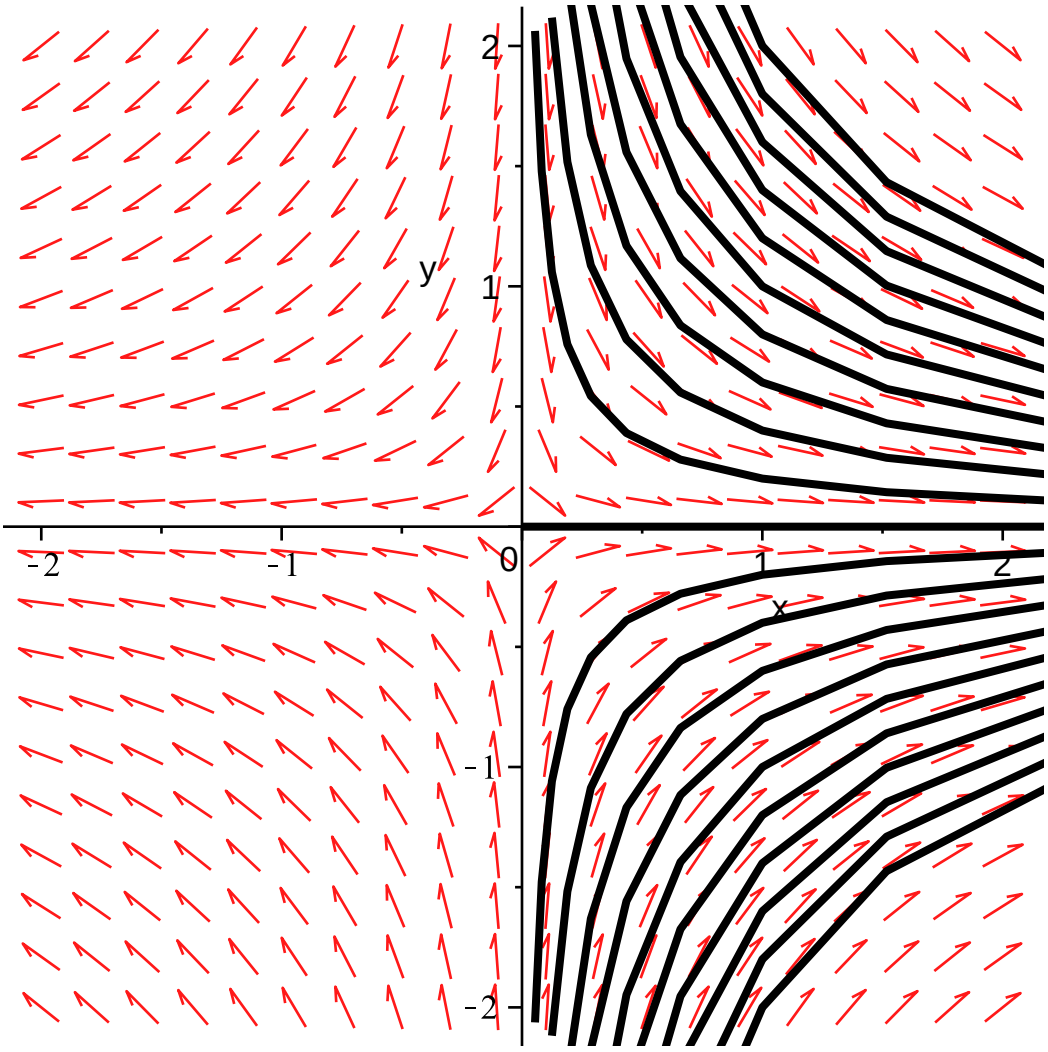

```
> DEplot( [diff(x(t),t) = 3*x(t), diff(y(t),t)= -2*y(t)+3*x(t)],
   [x(t), y(t)], t=-2..2, x=-2..2, y=-2..2,
    [seq([x(0)=1, y(0)=k], k=-2..2, .2)], linecolor=black);
```



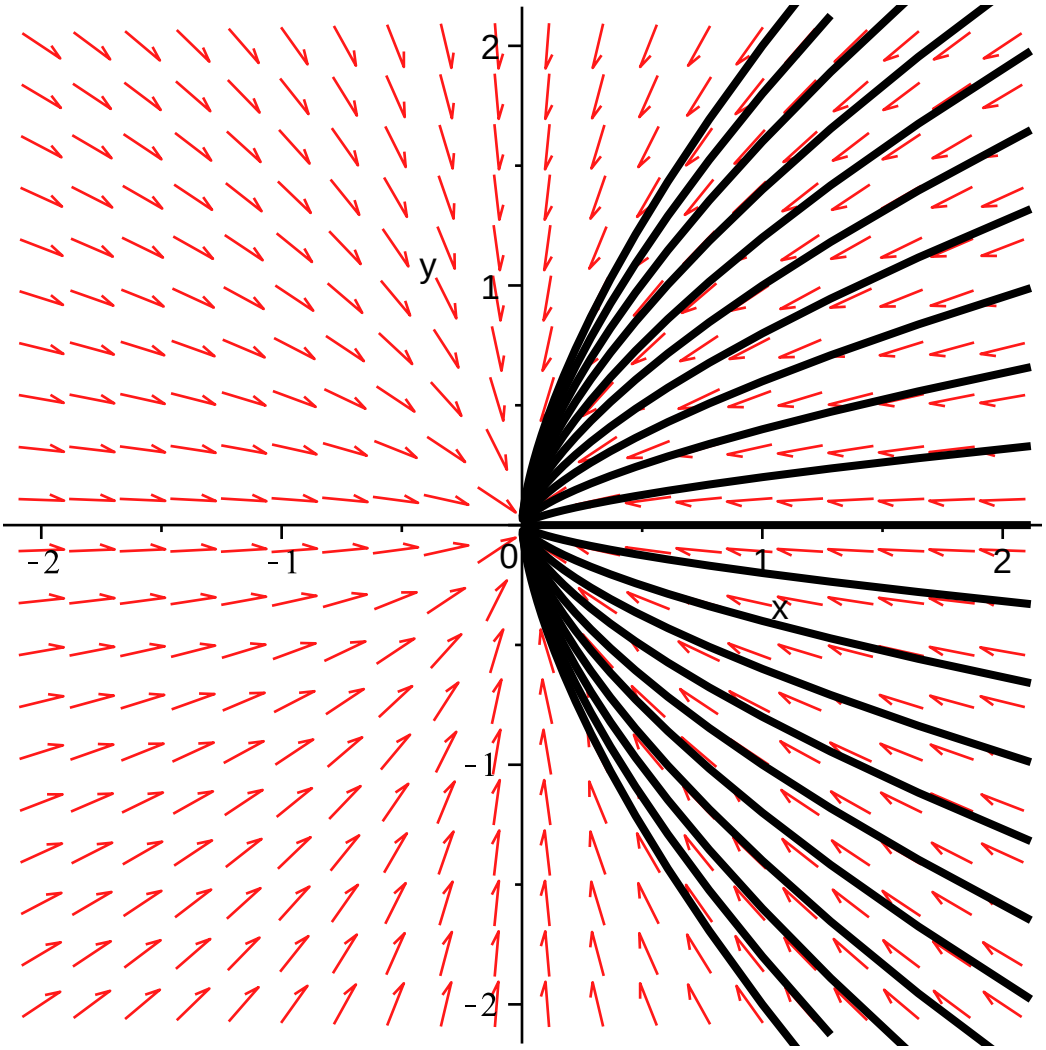

```
> dsolve( [diff(x(t),t) = 3*x(t), diff(y(t),t)= -2*y(t)+3*x(t), x
  (0)=1, y(0)=1] );
```

$$\left\{x(t) = e^{3t}, y(t) = \frac{3}{5}\, e^{3t} + \frac{2}{5}\, e^{-2t}\right\} \tag{7}$$

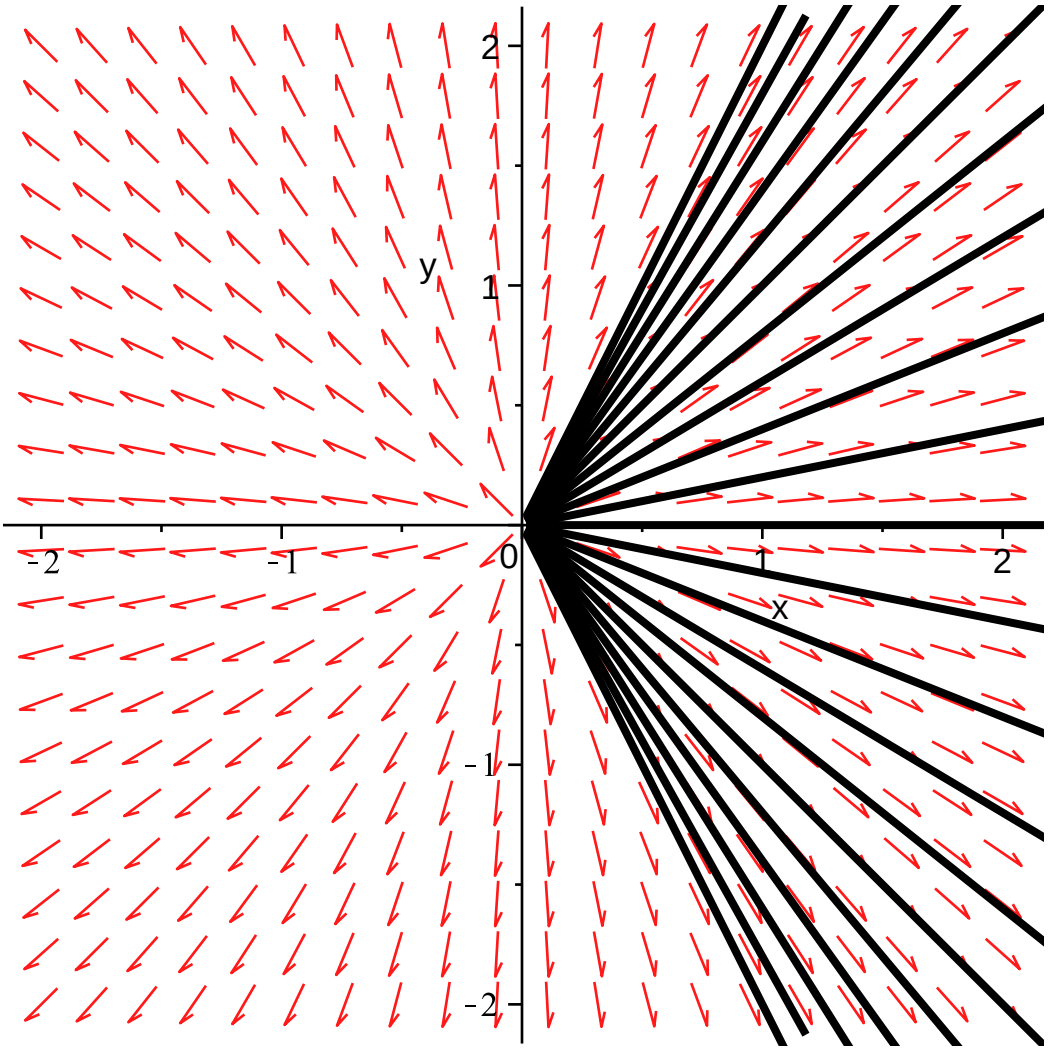
```
> DEplot( [diff(x(t),t) = 5*x(t), diff(y(t),t)= -4*y(t)],
    [x(t), y(t)], t=-2..2, x=-2..2, y=-2..2,
    [seq([x(0)=1, y(0)=k], k=-2..2, .2)], linecolor=black);
```



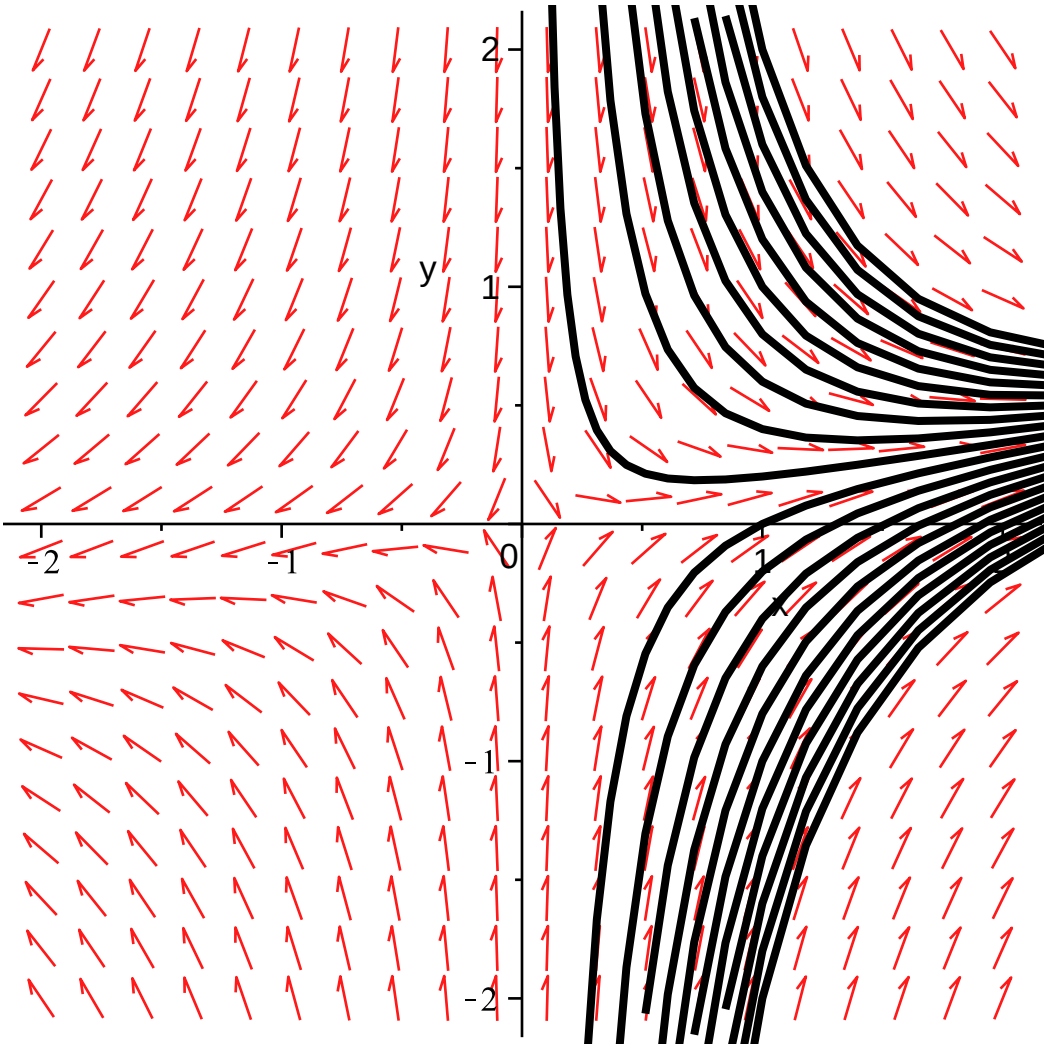

```
> DEplot( [diff(x(t),t) = -3*x(t), diff(y(t),t)=-2*y(t)],
    [x(t), y(t)], t=-2..2, x=-2..2, y=-2..2,
    [seq([x(0)=1, y(0)=k], k=-2..2, .2)], linecolor=black);
```



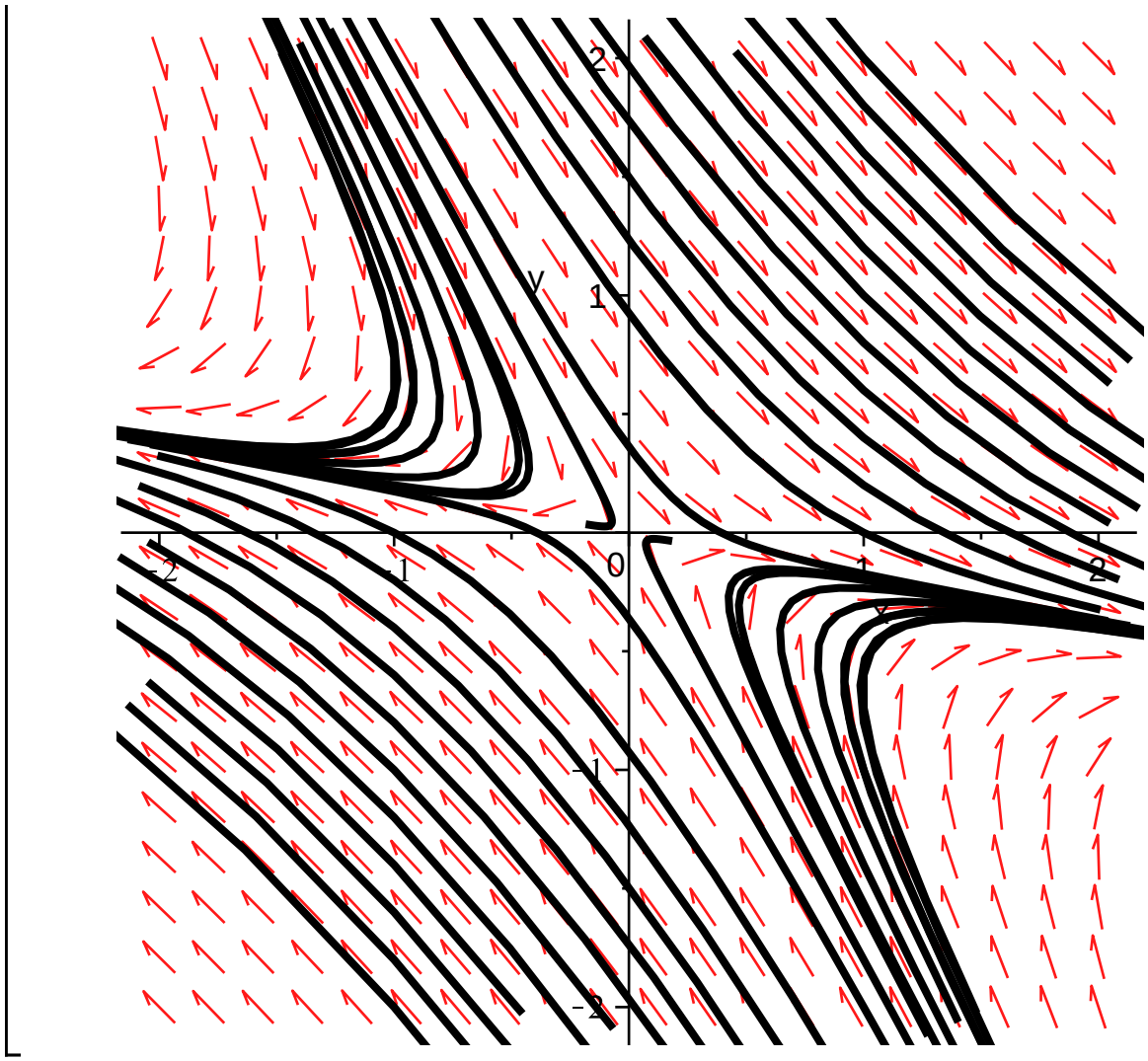

```
> DEplot( [diff(x(t),t) = 2*x(t), diff(y(t),t)=2*y(t)],
    [x(t), y(t)], t=-2..2, x=-2..2, y=-2..2,
    [seq([x(0)=1, y(0)=k], k=-2..2, .2)], linecolor=black);
```




```
> DEplot( [diff(x(t),t) = 2*x(t), diff(y(t),t)=x(t)-4*y(t)],
    [x(t), y(t)], t=-2..2, x=-2..2, y=-2..2,
    [seq([x(0)=1, y(0)=k], k=-2..2, .2)], linecolor=black);
```




```
> DEplot( [diff(x(t),t) = 2*x(t)+3*y(t), diff(y(t),t)=-x(t)-4*y(t)
  ],
     [x(t), y(t)], t=-2..2, x=-2..2, y=-2..2,
     [seq([x(0)=1, y(0)=k], k=-2..2, .2), seq([x(0)=-1, y(0)=k], k=
  -2..2, .2)], linecolor=black);
```


2
1
y
0
−1
−2
−2
−1
1
2
x