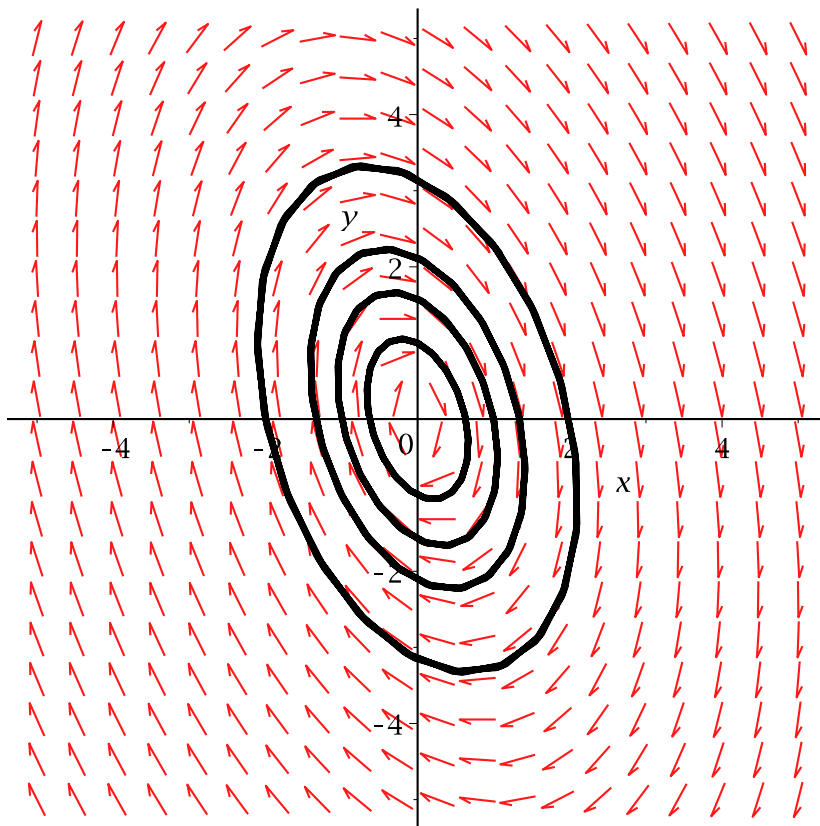


```
> with(DEtools):
> A:=[1,2,-5,-1];
A:= [1, 2, -5, -1] (1)
```

```
> Sys:= diff(x(t),t)=A[1]*x(t)+A[2]*y(t), diff(y(t),t)= A[3]*x(t)+A
[4]*y(t) ;
Sys:=  $\frac{d}{dt} x(t) = x(t) + 2 y(t), \frac{d}{dt} y(t) = -5 x(t) - y(t)$  (2)
```

```
> ICs:=[[x(0)=1,y(0)=0],[x(0)=0,y(0)=1],[x(0)=-1,y(0)=-1],[x(0)=-2,
y(0)=0]];
ICs:= [[x(0) = 1, y(0) = 0], [x(0) = 0, y(0) = 1], [x(0) = -1, y(0) = -1], [x(0) = (3)
-2, y(0) = 0]]
```

```
> DEplot([Sys], [x(t), y(t)],t=-5..5,x=-5..5,y=-5..5,ICs,linecolor=
black,stepsize=0.1);
```



```
> A:=[1,-5,1,-3];
A:= [1, -5, 1, -3] (4)
```

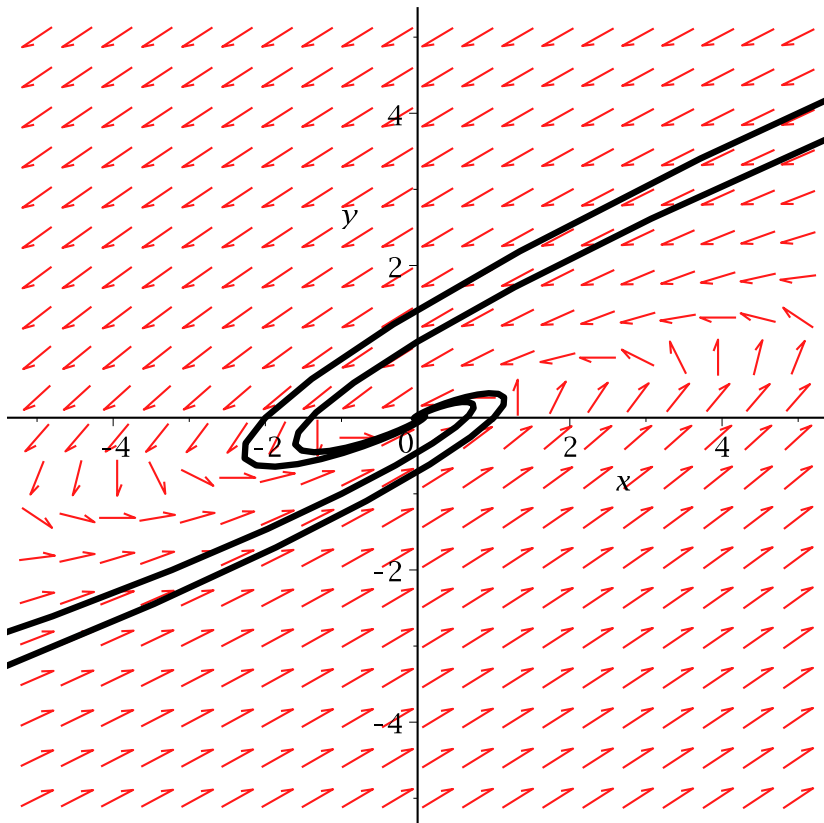
```
> Sys:= diff(x(t),t)=A[1]*x(t)+A[2]*y(t), diff(y(t),t)= A[3]*x(t)+A
[4]*y(t) ;
```

$$\text{Sys} := \frac{d}{dt} x(t) = x(t) - 5 y(t), \frac{d}{dt} y(t) = x(t) - 3 y(t) \quad (5)$$

```
> ICs := [[x(0)=1, y(0)=0], [x(0)=0, y(0)=1], [x(0)=-1, y(0)=-1], [x(0)=-2, y(0)=0]];
```

```
ICs := [[x(0) = 1, y(0) = 0], [x(0) = 0, y(0) = 1], [x(0) = -1, y(0) = -1], [x(0) = -2, y(0) = 0]] \quad (6)
```

```
> DEplot([Sys], [x(t), y(t)], t=-5..5, x=-5..5, y=-5..5, ICs, linecolor=black);
```



```
> A := [1, 2, -5, 0];
```

```
A := [1, 2, -5, 0] \quad (7)
```

```
> Sys := diff(x(t), t) = A[1]*x(t) + A[2]*y(t), diff(y(t), t) = A[3]*x(t) + A[4]*y(t) ;
```

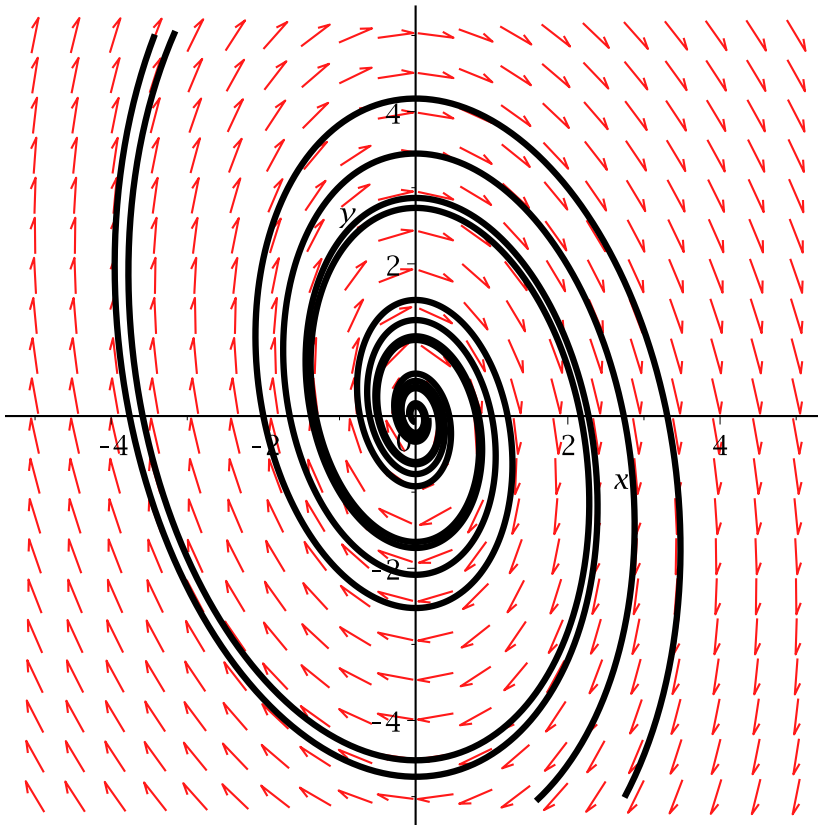
$$\text{Sys} := \frac{d}{dt} x(t) = x(t) + 2 y(t), \frac{d}{dt} y(t) = -5 x(t) \quad (8)$$

```
> ICs := [[x(0)=1, y(0)=0], [x(0)=0, y(0)=1], [x(0)=-1, y(0)=-1], [x(0)=-2, y(0)=0]];
```

```
ICs := [[x(0) = 1, y(0) = 0], [x(0) = 0, y(0) = 1], [x(0) = -1, y(0) = -1], [x(0) = -2, y(0) = 0]] \quad (9)
```

```
-2, y(0) = 0]]
```

```
> DEplot([Sys], [x(t), y(t)], t=-5..5, x=-5..5, y=-5..5, ICs, linecolor=  
black, stepsize=0.01);
```



```
> A:=[-3,-5,-5,-3];
```

```
A:=[-3, -5, -5, -3] (10)
```

```
> Sys:= diff(x(t),t)=A[1]*x(t)+A[2]*y(t), diff(y(t),t)= A[3]*x(t)+A  
[4]*y(t) ;
```

```
Sys:=  $\frac{d}{dt} x(t) = -3 x(t) - 5 y(t), \frac{d}{dt} y(t) = -5 x(t) - 3 y(t)$  (11)
```

```
> ICs:=[[x(0)=1,y(0)=0],[x(0)=0,y(0)=1],[x(0)=-1,y(0)=-1],[x(0)=-2,  
y(0)=0]];
```

```
ICs:= [[x(0) = 1, y(0) = 0], [x(0) = 0, y(0) = 1], [x(0) = -1, y(0) = -1], [x(0) =  
-2, y(0) = 0]] (12)
```

```
> DEplot([Sys], [x(t), y(t)], t=-5..5, x=-5..5, y=-5..5, ICs, stepsize=  
0.1, linecolor=black);
```

