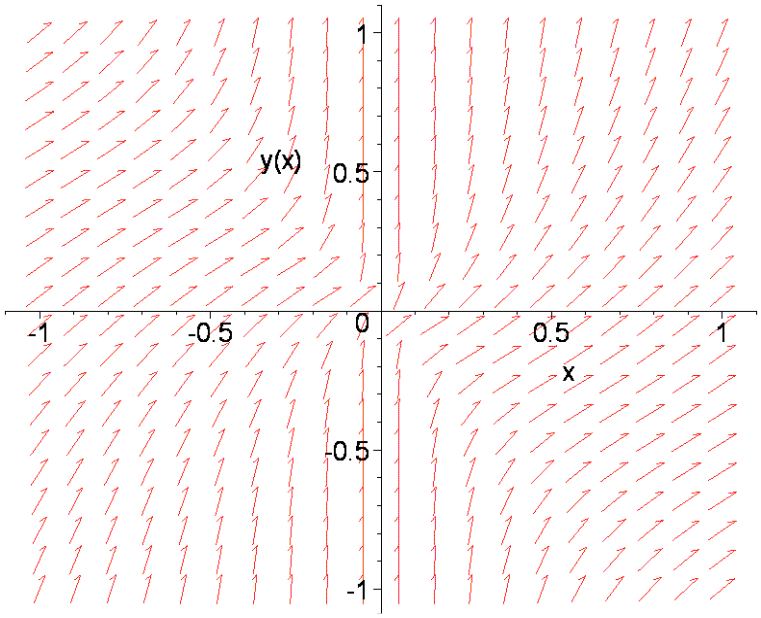
Direction Fields for the Homogeneous D.E.'s (so you can see the zoom invariance):

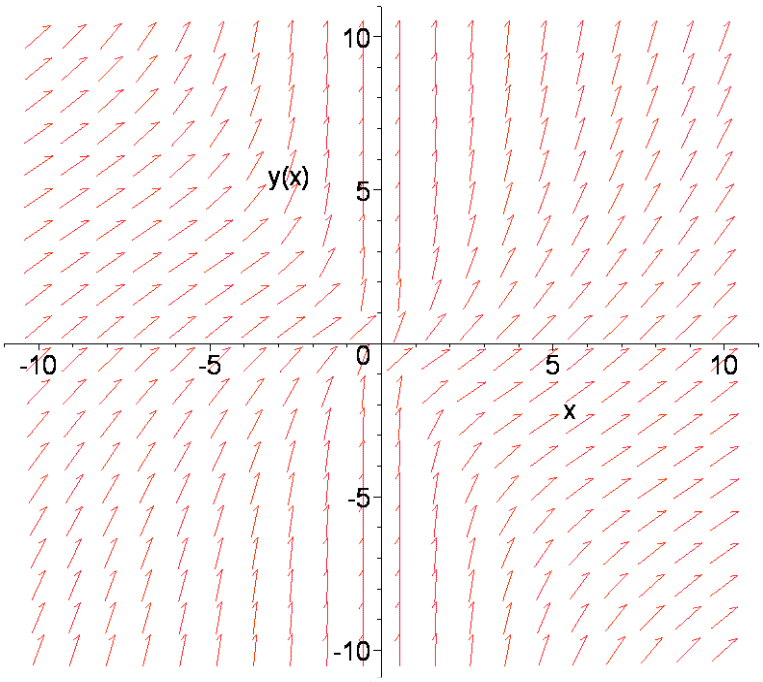
```
> with(DEtools):
> DE31:=diff(y(x),x)=(x^2+x*y(x)+(y(x))^2)/x^2;
```

$$DE31 := \frac{\partial}{\partial x} y(x) = \frac{x^2 + x\,y(x) + y(x)^2}{x^2}$$

```
> DEplot(DE31,y(x),x=-1..1,y=-1..1);
```



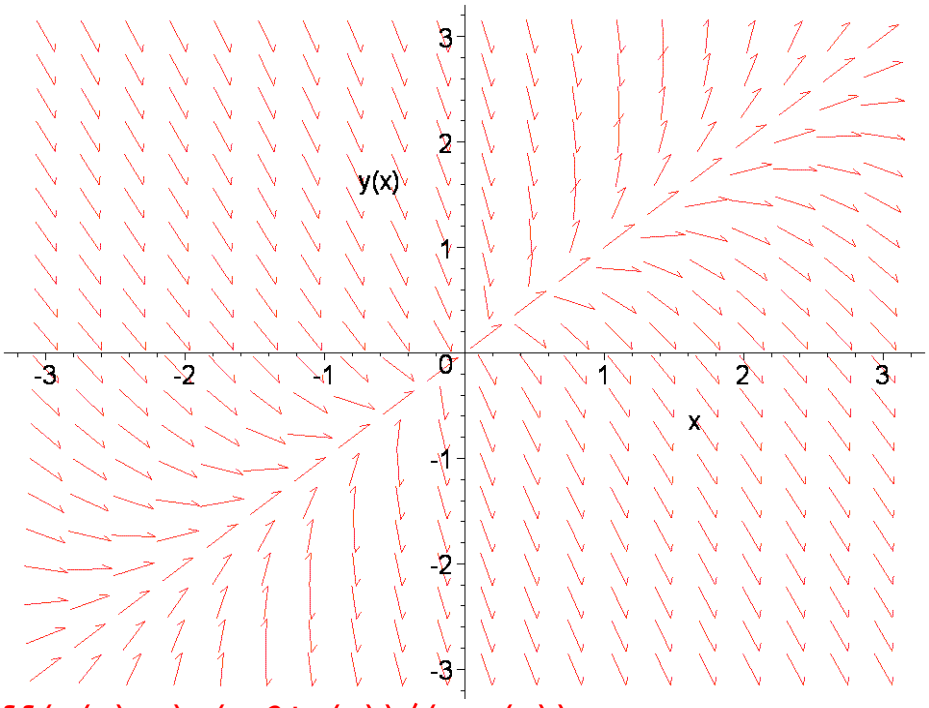

```
> DEplot(DE31,y(x),x=-10..10,y=-10..10);
```




```
> DE33:=diff(y(x),x)=(4*y(x)-3*x)/(2*x-y(x));
```

$$DE33 := \frac{\partial}{\partial x} y(x) = \frac{4\,y(x) - 3\,x}{2\,x - y(x)}$$

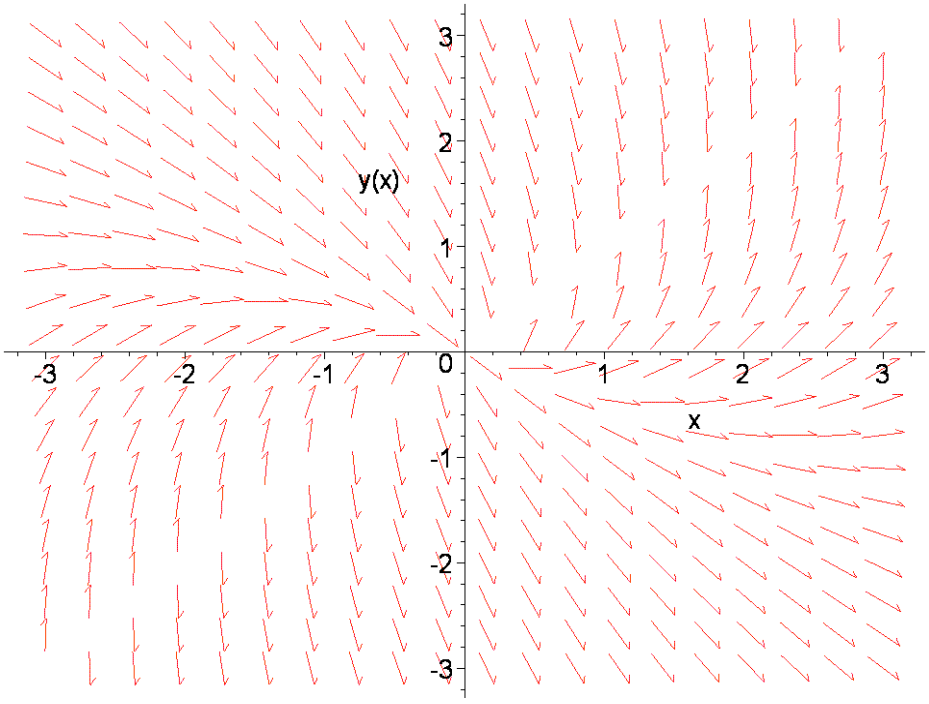
```
> DEplot(DE33,y(x),x=-3..3,y=-3..3);
```




```
> DE35:=diff(y(x),x)=(x+3*y(x))/(x-y(x));
```

$$DE35 := \frac{\partial}{\partial x} y(x) = \frac{x + 3\,y(x)}{x - y(x)}$$

```
> DEplot(DE35,y(x),x=-3..3,y=-3..3);
```




```
>
```