```
> d1 := diff(x(t), t) = 8·x(t) − 5·x(t)·y(t)
```

$$d1 := \frac{d}{dt}\,x(t) = 8\,x(t) - 5\,x(t)\,y(t) \tag{1}$$

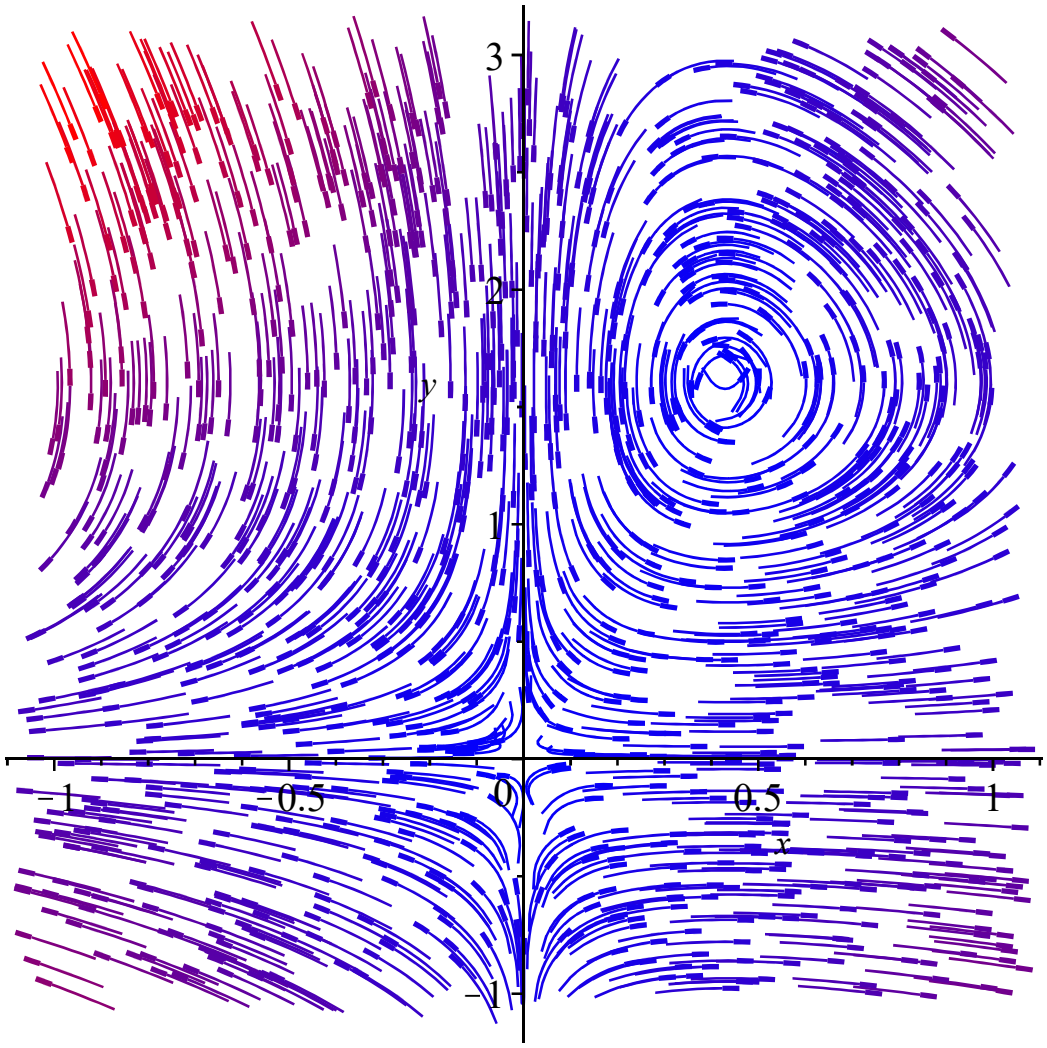
```
> d2 := diff(y(t), t) = -3·y(t) + 7·x(t)·y(t)
```

$$d2 := \frac{d}{dt}\,y(t) = -3\,y(t) + 7\,x(t)\,y(t) \tag{2}$$

```
> solve({rhs(d1) = 0, rhs(d2) = 0}, {x(t), y(t)})
```

$$\{x(t) = 0, y(t) = 0\},\ \left\{x(t) = \frac{3}{7}, y(t) = \frac{8}{5}\right\} \tag{3}$$

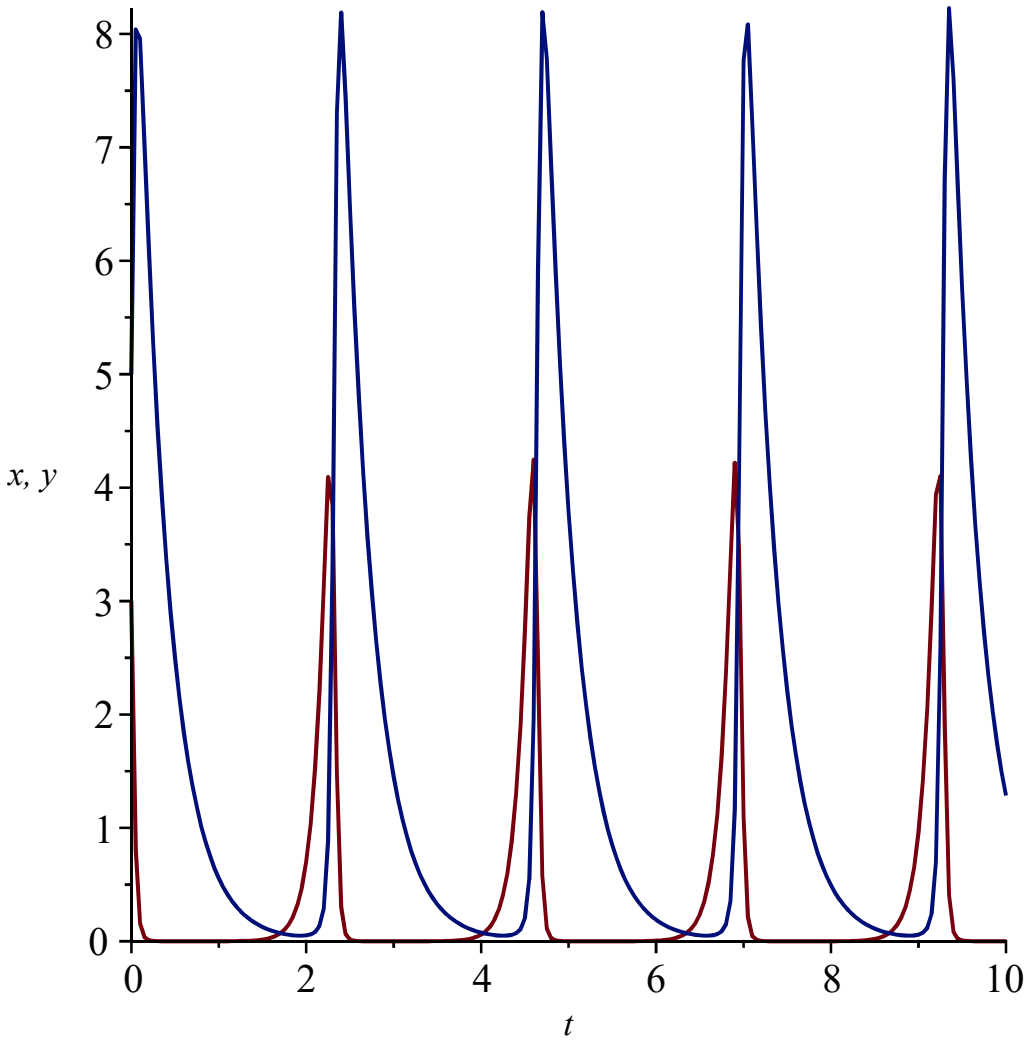
```
> with(DEtools):
> DEplot([d1, d2], [x(t), y(t)], t = -5..5, x = -1..1, y = -1..3, arrows = curve, dirfield = 1200,
      color = magnitude)
```



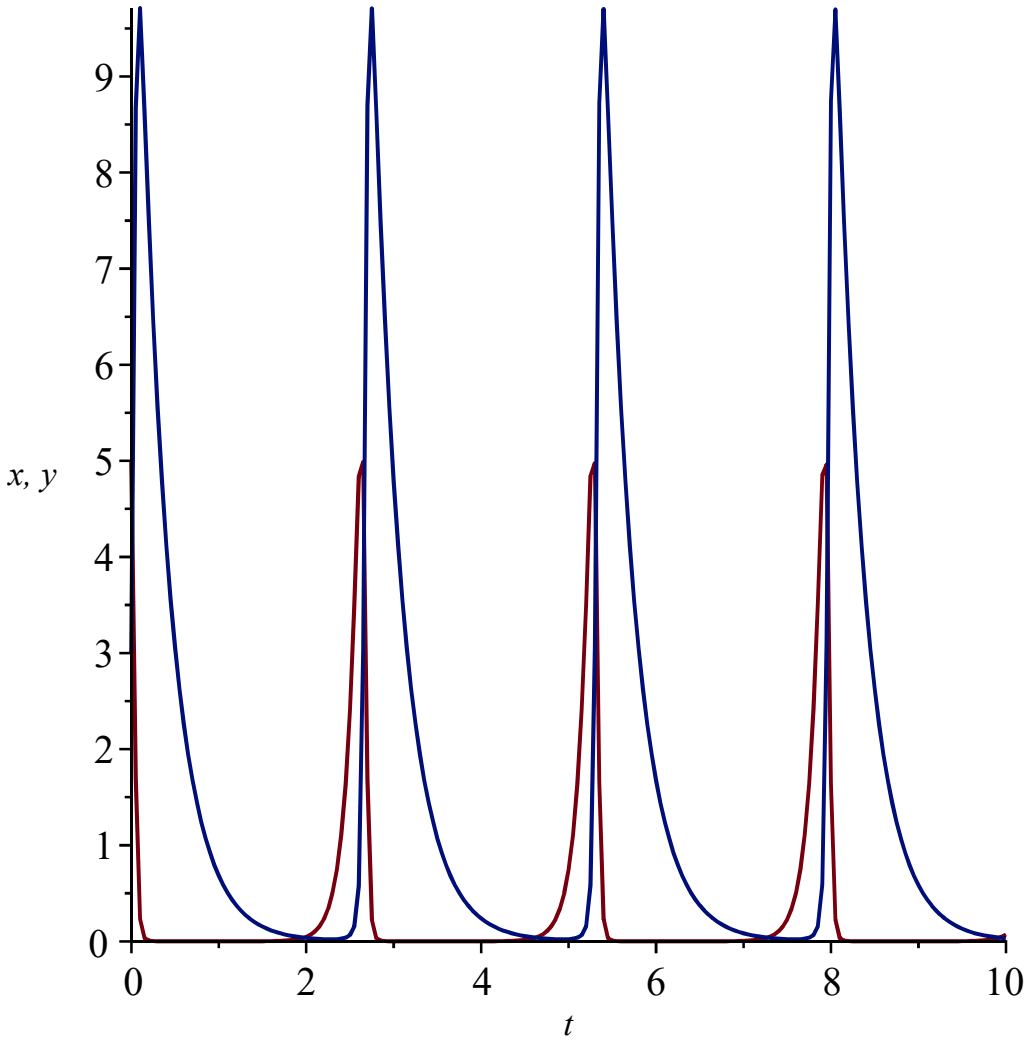

```
> syst1 := dsolve({d1, d2, x(0) = 3, y(0) = 5}, {x(t), y(t)}, numeric, method = rkf45)
```

$$syst1 := \mathbf{proc}(x\_rkf45)\ \ldots\ \mathbf{end\ proc} \tag{4}$$

```
> with(plots):
> odeplot(syst1, [[t, x(t)], [t, y(t)]], t = 0..10)
```

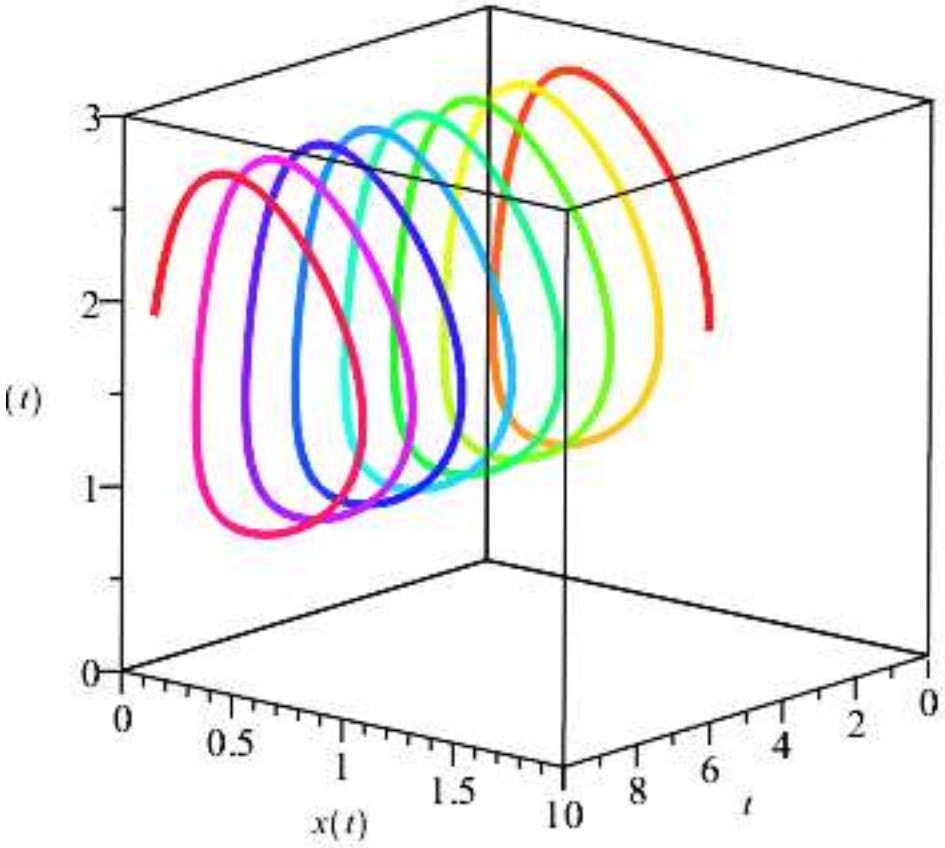



```
> syst2 := dsolve( {d1, d2, x(0) = 5, y(0) = 3}, {x(t), y(t)}, numeric, method = rkf45)
                        syst2 := proc(x_rkf45) ... end proc                    (5)
> odeplot(syst2, [[t, x(t)], [t, y(t)]], t = 0..10)
```




```
> DEplot3d({d1, d2}, {x(t), y(t)}, t = 0..10, x = 0..2, y = 0..3, [[x(0) = 1, y(0) = 1.5], [x(0)
    = 2, y(0) = 3]], scene = [t, x(t), y(t)], stepsize = 0.01, title = 'predator prey', linecolor = t)
```

predator prey



>