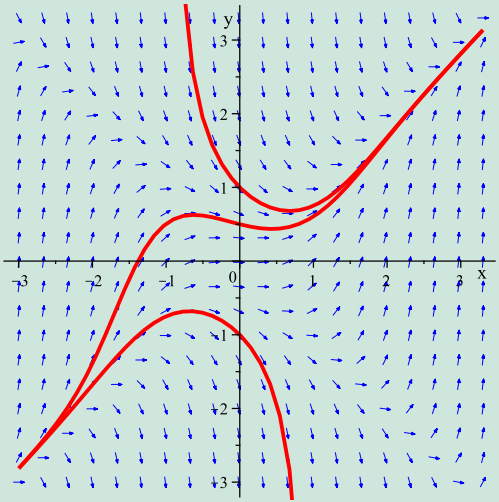
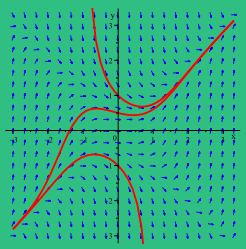
Differential Equations

Silvie Kuráňová

spring 2009





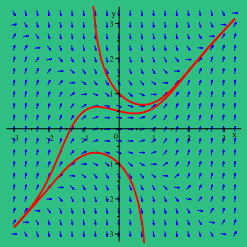
eCards: Differential Equations
AcroTEX eDucation Bundle

Titel page
Start Exercise
Full Screen
Quit

QUESTION

Sketch a direction field for the differential equation

$$y' = x^2 + y^2 - 1.$$



Titel page
Other Question
Help
Solution
Full Screen
Quit

HELP

Question: Sketch a direction field for the differential equation

$$y' = x^2 + y^2 - 1.$$

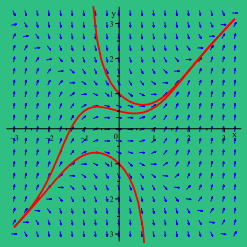
Help: Start by computing the slope at several points. You can use following table:

x	-2	-1	0	1	2	0	1	2	0	1	2
y	0	0	0	0	0	1	1	1	2	2	2
slope											

Ans

Now draw short line segments with these slopes at these points.

The more line segments you draw in a direction field, the clearer the picture becomes.



SOLUTION

Question: Sketch a direction field for the differential equation

$$y' = x^2 + y^2 - 1.$$

Solution: After computing slopes at several points and drawing short lines segments with these slopes at these points, we get graph similar to Figure 1. More detailed direction field is shown in Figure 2.

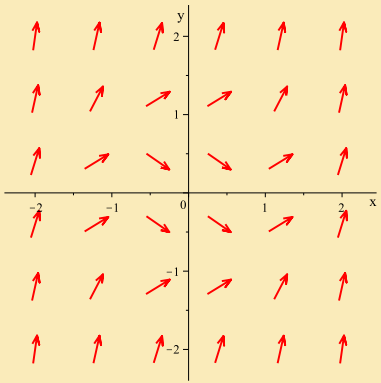


Figure 1

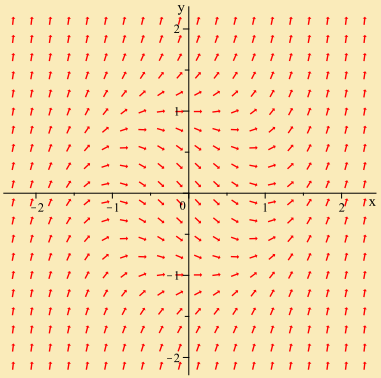


Figure 2