MAT137 Lecture 13

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Agenda

- Implicit differentiation.
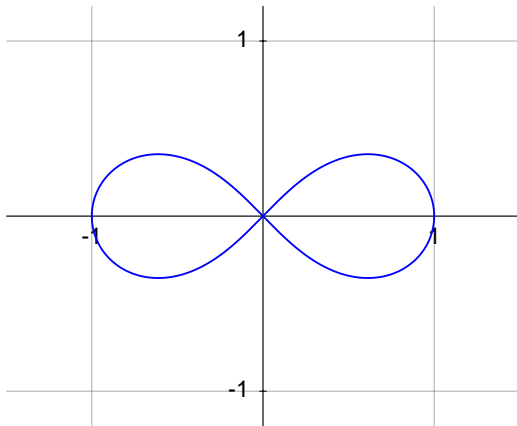
Implicit Differentiation

Find $\mathrm{d}y/\mathrm{d}x$ and $\mathrm{d}^2y/\mathrm{d}x^2$ at the point indicated.

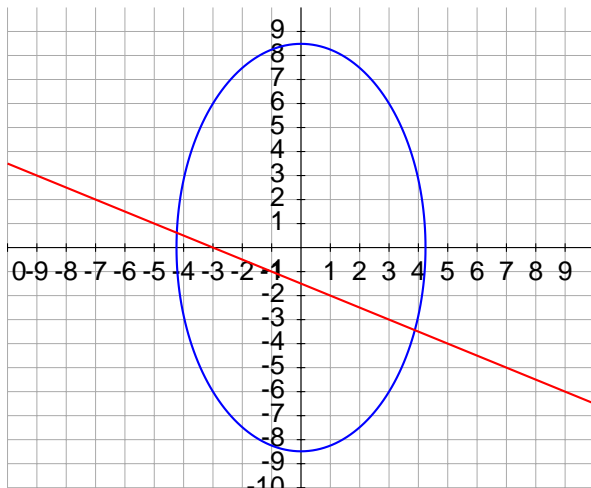$$x^2 + 4xy + y^3 + 5 = 0; \quad (2, -1).$$

Lemniscate

The curve $(x^2 + y^2)^2 = x^2 - y^2$ is called a *lemniscate*

Write down an equation for the tangent line to the curve at the point $\left(-\frac{\sqrt{3}}{2\sqrt{2}}, -\frac{1}{2\sqrt{2}}\right)$.

Ellipse

Find equations for the lines tangent to the ellipse $4x^2 + y^2 = 72$ that are perpendicular to the line $x + 2y + 3 = 0$.

Next Class: Thursday Oct 26

Watch videos 13, 14, 15, 16, 17, 18 in Playlist 3.